

# AMERICAN NURSERYMAN

and The NATIONAL NURSEYMAN

APR 22 1940  
APRIL 15, 1940

UNIVERSITY OF CALIFORNIA  
STATE COLLEGE



*Malus Theifera*

Display Garden Makes Sales  
Selection of Narrow-leaved Evergreens  
Rooting Evergreens with Chemical  
Fruit Tree Stocks

# AMERICAN NURSERYMAN

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F. R. KILNER, Editor

## Editorial

### ABOUT "PAY GARDENS."

Perhaps the simplest response to Ernest Hemming's challenge at the end of his article, "Pay Gardens," in this issue would be to append the request, "Maryland papers please copy," in the hope that some moneyed citizen of his state might be either speculatively or horticulturally interested enough to advance the necessary funds. But it appears to the editor that the challenge is more than for funds for a garden in Maryland. It advances an idea which deserves the attention of ambitious nurserymen in many states. In fact, the idea has been talked about by eastern nurserymen since they visited Lambert's gardens, at Portland, Ore., last summer at the time of the A. A. N. convention, as well as Buschert's garden, at Victoria, B. C.

While the latter was laid out originally as a private estate, like the most notable "pay gardens" of the southeast, the former has from the start been a commercial project evolved in connection with a nursery.

While the celebrated Magnolia Gardens, at Charleston, S. C., and the equally famous Bellingrath Gardens, at Mobile, Ala., were originally private estates, their success in attracting visitors who pay admission has given rise to nearly a dozen private or civic projects of the same sort on a purely commercial basis in various parts of Florida, where the smaller towns wish to get their share of the tourists' money. The financial return of the "pay garden" is recognized by other persons than nurserymen.

Such gardens should have equal attraction in spring, summer and autumn for tourists in the northern states, besides serving an educational purpose to the citizens of the immediate locality. The nurseryman who looks far enough ahead could build up such a garden over a period of years at a minimum expense. He is in excellent position to initiate such an undertaking, but why doesn't he?

Perhaps the answer is that, besides

requiring a combined knowledge of suitable plants and expert landscape design, such gardens require something in the way of showmanship. There must be something spectacular, in the best sense of the word, about such a garden, or else it is just a park or an arboretum. Then good advertising is required, another essential of the showman. And the general criticism is that nurserymen least recognize the advertising of their wares.

Perhaps the promoter of the "pay garden" must come from outside the nursery field. Perhaps a future Billy Rose or Earl Carroll will turn his attention in this direction. It is a pity that it must wait so long, for "pay gardens" would be valuable instruments of horticultural education. And the editor is a great believer in that, else he would not have spent so many years at this particular branch of it. The more the public knows about plants, the larger will be nurserymen's sales.

### WHAT CAN BE DONE?

This is the season of the year when roadside stands spring up for a couple of months and peddlers make their rounds offering nursery stock at cut prices. When the buyers find this stock dying in their gardens a few months hence, the roadside stands will have disappeared and the peddlers be far away. Serves them right, you say, and so it does.

But not only does the retail nurseryman in the locality miss sales this spring, but both he and the wholesaler who supplies him are losers later, because the peddlers' victims are not going to buy from you after they have been stung once. Sales are lost not only this season, but in seasons to come as well.

What can be done? Legislation has been tried, but does not seem to fill the bill. But there are other ways.

The wholesaler who has hitherto been shortsighted enough to let his stock get into the hands of anyone, regardless of whether he is competent to resell the merchandise with proper handling, should realize that he is losing future business just as surely as the retail nurseryman.

## The Mirror of the Trade

The retailer can do his part by stressing, in his advertising, the years he has been in business, his permanence at his present location and his responsibility to customers now and in the seasons ahead. Emphasize the difference between what the customer gets by buying your stock and by buying that of the peddler.

Another thing, make your nursery, sales yard or other place of business look like an established and responsible enterprise. If your place of business is slovenly and unattractive—even though you give as an excuse the spring rush—how will the public realize that your merchandise is any better than the peddler's?

### RADIO GARDEN CLUB.

Readers who may wish to follow the 15-minute talks on the program of the Radio Garden Club, which originates at WOR, Newark, N. J., at 2:30 p. m., and is carried by the Mutual broadcasting network to other stations in the United States and Canada, at 3:15 p. m., eastern time, on Mondays and Fridays, may wish to make note of the schedule for coming weeks:

April 19, "Gardens of the World: Egypt," by Dr. C. H. Connors, head of the department of ornamental horticulture, New Jersey college of agriculture.

April 22, "Magnolias for Your Garden," by Ben Blackburn, extension specialist in landscape gardening, New Jersey college of agriculture.

April 26, "Penny Wise, Pest Foolish," by Cynthia Westcott. "The Plant Doctor."

April 29, "Garden Favorites: Azaleas," by Arthur T. Boddington, Bobbink & Atkins, Rutherford, N. J.

May 3, "A Basket of May," by Mrs. F. A. H. Anger, radio chairman, Federated Garden Clubs of New York State.

May 6, "Church Garden Questions and Answers," by Mrs. Garret Smith, lecturer.

May 10, "For City Gardeners," by Alice Recknagel, landscape architect.

May 13, "Naturalistic Plantings," by Mrs. Wheeler H. Peckham, horticulturist.

### WANT SENTRY MAPLE.

Requests for information as to sources of supply of *Acer saccharum* monumentale, both propagating wood and trees, from various parts of the country, indicate widespread interest. Stock is apparently quite limited, and any readers having it are requested to write the editor, who will forward the names of the inquirers.

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### EXTRA SPACE MORE THAN PAID.

"We feel that the additional money put into our advertisement during the past few months has more than paid us in return. We wish to congratulate you, and at the same time thank you, for putting out such a fine publication as your recent issues have been."—Avery H. Steinmetz, Portland Wholesale Nursery Co., Portland, Ore., April 8, 1940.



# Display Garden Makes Sales

*Plants Presented in Convenient Alphabetical Order along Wide Turf Pathways Are Readily Selected by Customers at New Retail Nursery near Rochester, N. Y.*

Established but one year ago, the new sales and display garden of the Village Nurseries, Inc., Penfield, N. Y., already has had many visitors and buyers from near-by Rochester and suburbs, as well as from more distant points. Distinguished by broad turf pathways, the garden displays its line of plant material in concisely convenient alphabetical order, so that potential buyers may easily note the qualifications of the various plants. These grass pathways, ten feet in width, separate the lateral display beds fourteen feet wide, parallel one to another. Visitors may walk always on grass areas and at the same time closely examine the various kinds of plant material on display in the beds. Most of the lateral beds are occupied with deciduous shrubs and evergreens. Alphabetical sequence of plants in the display beds conforms with the order in which the plants are listed in the firm's catalogue-price list. Certain of the lateral beds are exceptional in their plantings of distinct groups of plants. For instance, in balanced positions opposite one another, two beds are filled with collections of peonies, in part of each, and French hybrid lilacs, in the remaining parts. A feature such as this provides seasonal flower interest and affords the buyer fair opportunity for impartial comparison of varieties.

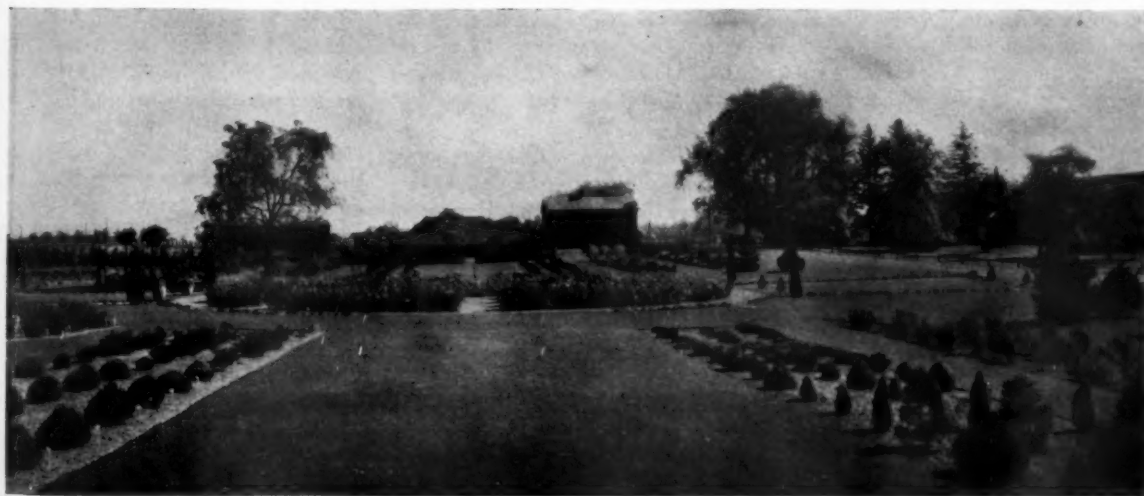
Immediately to the north and west of the garden proper, there are cultivated blocks of larger evergreens and deciduous trees planted for future sale as specimen material. However, every plant within the garden, regardless of its function in the general design, is for sale. When such a sale is made, the plant is immediately replaced by one from the nursery proper. In addition, in order to take care of daily cash-and-carry sales, a limited amount of packaged and "ready-to-go" material is carried in a lath house and replenished as needed. In connection with this servicing feature from nursery to garden, two independent systems of drives provide easy access from the front for visitors and from the rear for nursery trucks. In the design of the approach drives for visitors, complete parking facilities were incorporated.

Roses are emphasized as a firm specialty, and over 1,200 plants of hybrid tea, polyantha and floribunda roses, in extensive variety, compose the central circular rose garden feature. Climbing roses are displayed on standards forming a rear court to the rose garden proper. Dormant roses are merchandised until May 1. After that date, and until dormant rose plants are again available in the fall, potted roses are offered.

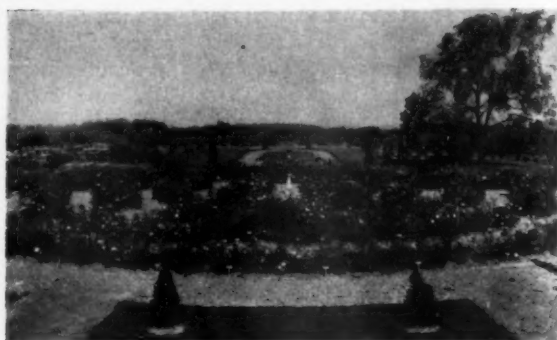
An additional point of interest is

the wide selection of plant varieties, both evergreen and deciduous, that have been planted as hedge test material. Alternate rows of evergreen and deciduous plants are arranged in two of the display beds and are being grown on and sheared into hedge form. The result should stimulate the planting of less common hedge material and develop greater interest in hedge use in general.

The firm's block of perennial flowers is located immediately to the east of the garden and along the highway. This feature has resulted in unusually good sales of perennials. Various packaging problems, often troublesome, have been met and solved, as necessity arose. For instance, perennials in the early stages of spring and summer bloom are chosen by the customer, dug with a small ball of soil and immediately pressed into an ordinary quart berry box and then taken away with the purchaser's other items. The customer, having seen his particular selection carefully dug and packaged, is favorably inclined to follow through with similar care in replanting in his own garden. Other types of packaged material are potted roses, in limited quantity only, and shrubs grown on from dormancy in either bushel or half-bushel size fruit baskets, from which the shrub easily transplants at any time during the summer or early



General View of Display and Sales Garden of Village Nurseries, Inc., Notable for Wide Turf Pathways.



Sections of Sales Garden Showing Variety of Plants Well Displayed and Labeled.

fall. This type of package, however, is held down in quantity to the limited need anticipated for the summer season between the regular selling times. Shrubs in leaf and flower, so potted, are of interest to visitors and fill a definite but limited need. Emphasis is always placed on the advisability of planting during the season of dormancy.

A century-old adobe house on the property has proved to be a point of considerable interest to many visitors, and it therefore is planned further to rehabilitate this structure. Other buildings are entirely utilitarian. Plants for immediate delivery are placed in the lath house. A building to the rear is used for storing bulkier items and for potting. A sales building houses the field office, display room for seed, fertilizer and similar sundries, and facilities for the handling of telephone orders. The line of sundries is limited to good items of unquestioned quality that are definitely needed by home gardeners.

The entire sales and display garden

was designed and carried out by the landscape department of the firm. Roadways were built, buildings renovated and lawn areas graded and seeded and planting was completed all within the organization itself and at times that were convenient from general nursery activities. Good ultimate results were obtained from the careful initial planning of the project.

The Village Nurseries, Inc., was so named for location and to distinguish its purpose of sales garden merchandising from the regular business of the parent company of Brown Brothers Co., Rochester. Despite its suburban location a few miles east of the city line, buyers and visitors readily follow the well posted route to the garden.

#### STARK FOR PRESIDENT?

In its series on the careers and political beliefs of leaders who have been mentioned prominently for the presidential nomination, the New York Herald Tribune devoted a full

page March 10 to Lloyd C. Stark, governor of Missouri and previously vice-president and general manager of Stark Bros. Nurseries & Orchards Co., Louisiana, Mo.

While the governor is himself silent regarding presidential aspirations, he is entered in the primary race in Missouri for United States senator. If the third-term question is answered in the negative, Governor Stark would be a "natural" as the Democratic candidate, stated the Herald Tribune, if the Republicans should nominate Thomas E. Dewey. Also, in case of a convention deadlock, he might become the compromise candidate.

The trade follows the governor's political career with interest, not only because of his outstanding record in that field, but also because he was twice elected president of the American Association of Nurserymen, his first term having been completed by the vice-president while he served in France as major of artillery with the 80th Division.

# Selection of Narrow-leaved Evergreens

*Second of a Series of Articles Similar to the Treatment of Woody Deciduous Ornamental Plants in "Compiling a New Nursery List"—By L. C. Chadwick*

It is suggested that readers who did not peruse the first of this series of articles, which appeared in the March 15 issue of the American Nurseryman, do so before continuing with this discussion. An understanding of the policies in mind in this plant classification study and the factors determining the placement of the plants in the selected, secondary and discard lists is essential to the discussion that follows.

One of the most useful groups of narrow-leaved evergreens is the dwarf types varying from one to three feet in height. Plants of this size find extensive use in the foundation planting, as rock garden subjects, for low hedges and for small specimens in beds and borders. The effectiveness and beauty of evergreen plants are perhaps best displayed in foundation plantings. Here their dignity and charm are fully realized. By proper arrangement the architectural features of the house are emphasized. The plants chosen should, for the most part, be neutral in their effect, rather than strikingly outstanding objects. Green foliage should predominate. While a few of the taller emphatic varieties may be useful on each side of the entrance and at the corners of the house, the dwarf types will find extensive use as facing material for the taller types, for planting beneath the windows of the house and as formal entrance plants. The use of too many varieties may spoil an otherwise perfect planting. Two or three varieties will be sufficient for the smaller places and only a few others for the larger plantings.

In preparing the classified lists of these dwarf types, no attempt will be made to include all the known types. This would be an almost impossible task because of the exceedingly large number and the fact that a good many of the types are not common in the trade or even known in this country. Hornibrook in his book, "Dwarf and Slow Growing Conifers," published in 1923, describes some 460 types, many coming within this group of dwarf types ranging from one to three feet in height. Undoubtedly

many other types have been added in his latest edition. Most of the types common in the trade will be found in the lists. A careful survey would no doubt show a number of dwarf types peculiar to a single nursery or to a few nurseries or gardens. No attempt is made to include all of these plants. Seventy-three plants are listed and approximately ten per cent are placed in the selected list, thirty-five per cent in the secondary list and fifty-five per cent in the discard list.

It is a difficult task to classify properly these dwarf types into definite size groups. Considerable overlapping of groups 3 and 4 occurs. For example, a number of the dwarf varieties of Norway spruce, *Picea Abies* (excelsa), may become six feet in height at maturity, but they are extremely slow in attaining this size. Specimens of *Taxus baccata* repandens, the spreading English yew, have been reported as high as five feet. Nevertheless, it should be classified in group 3. Perhaps this fact should not greatly disturb us and if your favorite plant is not listed with the plants in group 3, there is a good possibility that it will be included in group 4.

## GROUP 3, DWARF TYPES (1 to 3 ft.) SELECTED LIST.

*Juniperus horizontalis* plumosa—Andorra juniper.  
*Juniperus virginiana* globosa—Globe red cedar.  
*Pinus mugo* mughus (montana mughus) (selected)—Mugo pine.  
*Taxus baccata* repandens — Spreading English yew.  
*Taxus cuspidata* densa.  
*Taxus cuspidata* nana—Dwarf Japanese yew.  
*Thuja occidentalis* Woodwardii—Woodward arbovitae.  
*Tsuga canadensis* nana—Bennett spreading hemlock.

## SECONDARY LIST.

*Chamaecyparis obtusa* compacta.  
*Chamaecyparis obtusa* pygmaea.  
*Chamaecyparis obtusa* Tsatsumi.  
*Juniperus chinensis* globosa (Shosmith form).  
*Juniperus chinensis* japonica (plumosa).  
*Juniperus chinensis* Pfitzeriana compacta.  
*Juniperus* Sabina.  
*Juniperus* Sabina tamariscifolia.  
*Picea Abies* (excelsa) Clanbrasiliana.  
*Picea Abies* (excelsa) Gregoryana.  
*Picea Abies* (excelsa) Maxwellii.  
*Picea Abies* (excelsa) microperma.  
*Picea Abies* (excelsa) nidiformis.  
*Picea Abies* (excelsa) procumbens.

*Picea Abies* (excelsa) pygmaea.  
*Pinus mugo* compacta (montana compacta).  
*Pinus mugo* Slavini (montana slavini).  
*Taxus canadensis* stricta.  
*Taxus cuspidata* minima.  
*Thuja occidentalis* Hoveyi.  
*Thuja occidentalis* pumila (Little Gem).  
*Thuja occidentalis* umbraculifera.  
*Thuja orientalis* nana compacta.  
*Tsuga canadensis* globosa.  
*Tsuga canadensis* sparsifolia.  
*Tsuga canadensis* densiflora.

## PLANTS TO DISCARD.

*Abies balsamea* hudsonia.  
*Chamaecyparis obtusa* minima.  
*Chamaecyparis obtusa* nana.  
*Chamaecyparis pisifera* nana.  
*Chamaecyparis pisifera* nana aureo-variegata.  
*Chamaecyparis pisifera* squarrosa minima (nana).  
*Juniperus chinensis* globosa.  
*Juniperus chinensis* alba.  
*Juniperus chinensis* japonica (plumosa) aurea.  
*Juniperus chinensis* japonica (plumosa) aureo-variegata.  
*Juniperus communis* compressa.  
*Juniperus communis* echiniformis.  
*Juniperus communis* hemisphaerica.  
*Juniperus* Sabina variegata.  
*Juniperus virginiana* reptans.  
*Picea Abies* (excelsa) Barryi.  
*Picea Abies* (excelsa) compacta.  
*Picea Abies* (excelsa) conica.  
*Picea Abies* (excelsa) diffusa.  
*Picea Abies* (excelsa) echiniformis.  
*Picea Abies* (excelsa) elegans.  
*Picea Abies* (excelsa) Ellwangeriana.  
*Picea Abies* (excelsa) humilis.  
*Picea Abies* (excelsa) Ohlendorffii.  
*Picea Abies* (excelsa) Merkii.  
*Picea Abies* (excelsa) nana.  
*Picea Abies* (excelsa) Parsonsii.  
*Picea Abies* (excelsa) parviformis.  
*Picea Abies* (excelsa) pseudo-Maxwellii.  
*Picea Abies* (excelsa) pumila.  
*Picea Abies* (excelsa) pyramidalis gracilis.  
*Picea Abies* (excelsa) Remontii.  
*Picea Abies* (excelsa) tabuliformis.  
*Picea Abies* (excelsa) Veitchii.  
*Taxus baccata* nana.  
*Taxus canadensis* densa.  
*Taxus* Hunnewelliana.  
*Thuja occidentalis* nana (novum).  
*Thuja occidentalis* pygmaea.

A few of the important characteristics of the selected plants and their correlation with some of those in the secondary and discarded lists are given below.

*Juniperus horizontalis* plumosa, the Andorra juniper, is perhaps the most charming of the low junipers, with its blue-green summer foliage, which turns purple in the fall and lasts throughout the winter. At maturity it is a depressed plant with a flat top as much as six to eight feet across and eighteen to twenty-four inches high. It is essentially free from pests and makes a fine plant for foundation



planting and for use in beds and rock gardens.

I should like to emphasize the fact that this plant is often erroneously listed in many nursery catalogues as *Juniperus depressa plumosa* and it should be corrected. There is no such species of *Juniperus* as *depressa*. The Andorra juniper was first described by Alfred Rehder as the variety *plumosa* of *Juniperus horizontalis* and this nomenclature should be followed. There is no justification of purposely listing a plant by an incorrect name.

*Juniperus virginiana globosa*, the globe redcedar, I consider the best of all the globe forms of junipers. It is a dense globose form with dark green scalelike leaves probably attaining a height of about four feet at maturity. It is slow-growing, comparatively free from pests as the junipers go and rather difficult to propagate. Grafting is the method of propagation usually followed, but the percentage of successful grafts is not so high as with most of the other varieties of the redcedar. The globe redcedar makes a good formal plant for foundation planting. Like almost all the varieties of redcedar, it should have a sunny exposure.

*Pinus mugo mughus* (selected), Mugo pine. Considerable confusion exists in the nomenclature of the plant that is sold as the Mugo, or Mugho pine. It is often listed in horticultural literature as *Pinus montana mughus*. According to priority, the Swiss mountain pine should be *Pinus mugo* and not *Pinus montana*. This plant may become thirty or forty feet in height, but varies greatly. At least six forms of the type plant have been given varietal names. Two of these varieties, *rotundata* and *rostrata*, are tree forms and are well outside this size group. The dwarf types vary considerably in form from a flat-topped spreading habit much wider than high, to dense globose forms somewhat higher than broad. Varieties are listed as *compacta*, *mughus*, *pumilio* and *Slavinii*. It is difficult to place some of the plants common in the trade as typical of some one of these varieties. If the varietal names are to mean much, the plants carrying the variety name should be more or less standardized and conform closely to the original description of that variety. This means that the varieties should be

propagated by asexual means and not by seeds, so that the type will be correctly perpetuated.

The variety *compacta* is described as a dense plant, almost globose in shape, with slender bright green leaves. This variety *compacta* is considered by some as a form of *Pinus mugo pumilio*. While it is a good variety, it is not superior to some of the other selected dwarf types. The variety *mughus*, while not accepted by some authorities, is applied by others to the common dwarf Mugo or Mugho pine of the trade and, while variable in habit, is described as being usually a prostrate shrubby form. Selected types of this plant are among the best of the dwarf pines. Variety *pumilio* is a dwarf, low, spreading type, sending up several leaders from the base of the plant and eventually becoming from four to ten feet in height, with often an even wider spread. The true type of this plant is undoubtedly too large for this group at maturity. Variety *Slavinii* is a form that originated at Rochester, N. Y., and was found and named after B. H. Slavin, the superintendent of parks. The plant is described as a low, dense, spreading form, with erect branches and short bluish-green leaves. The original plant was described in 1933 as being six feet across and about two feet in height.

The Mugo pine is useful in ornamental planting, as it does well in a wide variety of soils and exposures. It is often used in the foundation planting because of its low, formal habit and as a rock garden plant or a single specimen. The most serious pests are the pine leaf scale, which can be controlled by the usual dormant spray or by nicotine sulphate when the young hatch, and the Zimmerman pine moth, for which a satisfactory control measure has not been developed.

*Taxus baccata repandens*, the spreading English yew, is undoubtedly the most useful of all the varieties of the English yew and is certainly among the best of the plants of this group. It is the most hardy of the English yews. It is a prostrate grower, with wide-spreading branches, seldom more than two feet in height. However, specimens have been reported five feet or more in height. It is usually much wider than high, often covering an area six feet

or more across. The leaves are dark glossy green, often longer than most of the yews, sickle-shaped, and curved upward somewhat. Most of the yews will stand either sun or shade, but because of the occasional tendency of the foliage of this variety to burn when fully exposed to the sun in winter, it is best used in partially shaded situations or protected in late winter in some way. The only soil requirement is perfect drainage. This factor will apply to all the yews. Because good drainage is essential, a relatively light soil is preferred. The yews are freer from pests than any of the other genera of narrow-leaved evergreens. In some sections the black vine weevil becomes a serious pest. Poisoned baits are used as a control measure. The uses of the spreading English yew are extensive—as entrance plants, elsewhere in the foundation planting, in beds and borders in front of other evergreens, perhaps as a specimen and as rock garden subjects.

Among the best of the low evergreens are the dwarf varieties of *Taxus cuspidata*, the Japanese yew. They are perfectly hardy and will do well in sunny or shady exposures. With the spreading English yew they are the best of the low evergreens to hold a good green color during the winter months. Two of the varieties are on the selected list.

*Taxus cuspidata densa* is not so common in the trade as the dwarf Japanese yew, *Taxus cuspidata nana*, but it has many characteristics to commend its use. It is a low, compact, rounded bush and usually a little taller than broad. It is smaller than the variety *nana* at maturity and has a darker green foliage color. Because of its denser habit of growth and better color of foliage, I should consider it the better of the two varieties. It has been described as the most beautiful of all the dwarf conifers in the Arnold Arboretum. The original plants of this variety in this country were probably imported directly from Japan many years ago by the old Parsons Nursery, of Flushing, Long Island.

*Taxus cuspidata nana* has been used in landscape work for many years, often erroneously listed as *Taxus brevifolia* or *Taxus cuspidata brevifolia*. The dwarf Japanese yew attains a height of three or four feet

[Continued on page 36.]



# Rooting Evergreens with Chemical

*Effect of Indolebutyric Acid on the Rooting Response of Evergreen Cuttings in Tests at Boyce Thompson Institute for Plant Research—By Henry Kirkpatrick, Jr.*

Due to increasing demands for information on the rooting response of evergreen cuttings to growth substance treatments, the following article was prepared from information compiled at the Boyce Thompson Institute over a period of three years. All genera and species mentioned in the report showed a favorable response to treatment, and most of them have been tried frequently enough to substantiate the claim that root-inducing substances are beneficial in the rooting of many evergreen cuttings. Reports from other sources and results of our own work have shown that indolebutyric acid is definitely the best root-inducing substance to date for most varieties in the commercial field. This report deals with the effect of indolebutyric acid in both the solution form and the powder form on the rooting response of evergreen cuttings.

A greenhouse was used for most of the rooting tests. During the summer months (from June to September) no heating equipment of any kind was employed, but during the rest of the year heat was supplied. It was found that an air temperature ranging between 60 degrees Fahrenheit at night and 75 during the day gave optimum results. Temperatures lower than 60 tended to decrease the effectiveness of the growth substance. Little or no effect of growth substance should be expected when cuttings are planted and held in coldframes or greenhouses with temperatures lower than 60. Treated cuttings planted in coldframes responded well in the summer months, but showed little or no effect of treatment when planted in coldframes during cold weather. Cuttings rooted in the summer and left in coldframes wintered well when afforded sufficient protection.

The rooting medium found to be the best was a two-thirds sand, one-third German peat moss mixture. Heavy paint shading on the greenhouse glass or a raised cheesecloth shade proved effective. The moisture content of the rooting medium was kept on the dry rather than on the wet side. Cuttings were planted on a slant to ensure a high humidity around

the tops of the cuttings and thus keep them in a green, turgid condition.

The best strength of indolebutyric acid for good rooting was determined by using several different concentrations ranging from five to eighty milligrams per liter of water and one to twelve milligrams per gram of talc. In the solution immersion method these concentrations are expressed as milligrams of the substance per liter (approximately one quart) of water (mg./l.). In the powder dip method these concentrations are expressed as milligrams of the substance per gram of talc (mg./g.). Control lots were included in each test for comparison with the treated lots. Finely ground talc was the control used for the powder treatments, tap water the control for the solution treatments. In the solution treatments the basal ends of the cuttings were immersed in a solution of the substance for twenty-four hours before planting. In the

powder treatments the basal ends of the cuttings were moistened, then dipped into a mixture of the substance and finely ground talc before planting. In most cases the cuttings were prepared according to methods followed in general practice.

## Conifers.

"Heeled" cuttings (pulled from the plant) of conifers gave better results than those cut from the plant without a heel. After the cuttings were "heeled" from the parent plant they were separated into similar lots and treated with various strengths of the root-inducing substance. An interesting fact concerning injury was noted in the winter of 1938-1939. Branches from which cuttings were "heeled" in the winter died as far back as the lowermost sections from which the cuttings were taken. Therefore, it would be wise to remove from the parent plant the branches from

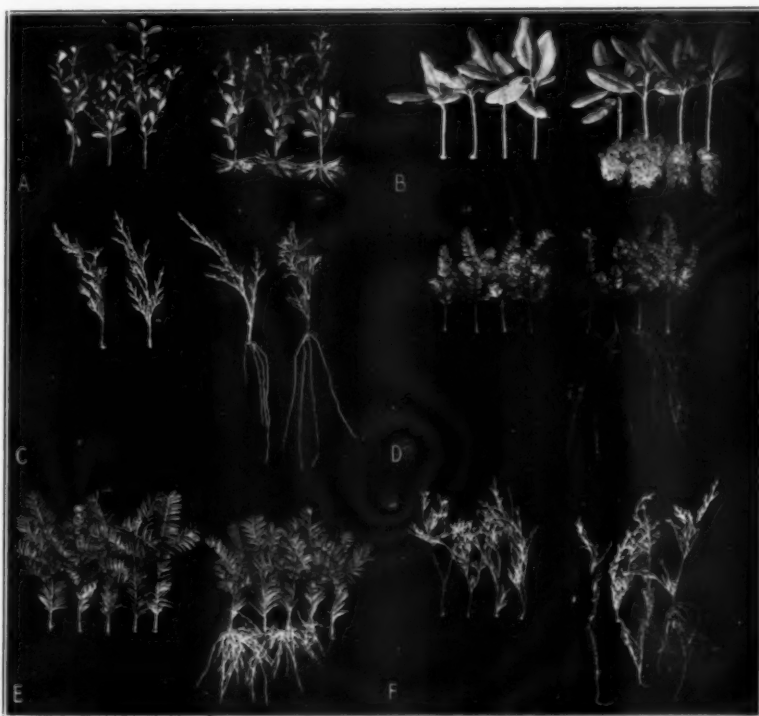


Figure 1. Evergreen cuttings. In each case the cuttings treated with indolebutyric acid are on the right, the control cuttings on the left. A. *Buxus microphylla koreana*. B. *Rhododendron* (garden hybrids). C. *Juniperus virginiana Keteleeri*. D. *Tsuga canadensis*. E. *Taxus cuspidata*. F. *Chamæcyparis pisifera filifera aurea*.

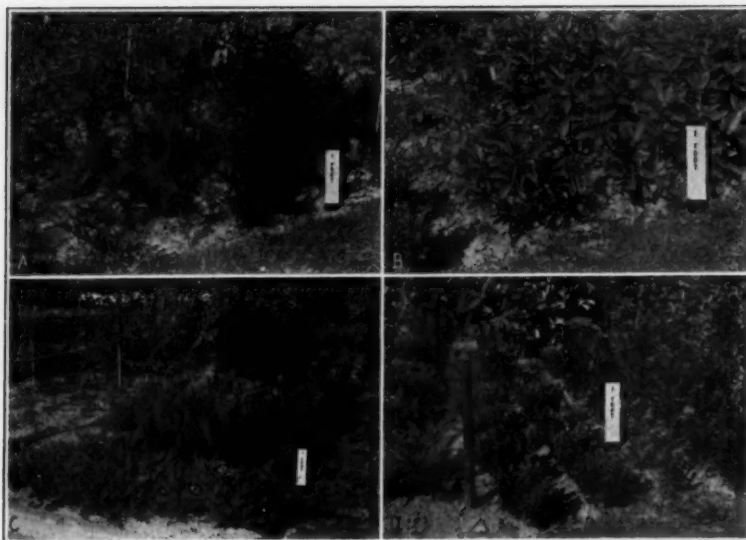


Figure 2. Three-year-old evergreen cuttings rooted by treatment with indolebutyric acid. A. *Taxus* varieties. B. *Rhododendron* (garden hybrids) on right, *Azalea mollis* on left. C. *Juniperus* varieties (foreground). D. *Buxus* varieties.

which "heeled" cuttings are to be taken. Cuttings were taken at different times of the year and various aged wood was used. In some cases, for example *Taxus cuspidata*, cuttings twelve to eighteen inches in length were treated and rooted. However, in general, cuttings of either the current year's growth or of two years' growth proved to be the best. Concentration requirements were generally high for the conifers as a whole. Forty to eighty milligrams of indolebutyric acid per liter of water for twenty-four hours and twelve milligrams of indolebutyric acid per gram of talc were the most effective strengths. The time of year the cuttings were taken appeared to be a limiting factor for good rooting on some of the conifers. Spruce cuttings (*Picea pungens*) rooted best when taken in February or March. Hemlock cuttings taken in March and April rooted much better than those taken at other times of the year. On all varieties the con-

centration requirements varied little with the time of year the cuttings were taken. Little or no rooting occurred on cuttings taken in the spring after the new growth had started or on very young material taken in early summer.

A few genera failed to respond to treatment. Cuttings of *cedrus* species and many of the *pinus* species taken from old trees have proved difficult to root. Seedling tissue of the above varieties responds more readily. Treated cuttings of other genera, however, rooted in from two to three months' time as compared to little or no rooting in control lots (Fig. 1). One of the most important of the benefits derived from treatment was the increase in the number of roots per cutting. Whereas many of the control cuttings had one to three roots, treated cuttings had a dozen or more roots. And in the treated lots roots arise not only from the basal callus, but also from stem tissue above the

base. This larger number of roots per cutting diminishes the danger of loss from root breakage when the cuttings are potted or planted in the field. Treated cuttings have been grown along with nontreated cuttings of the same age for a period of three years (Fig. 2) and have developed normally in every respect.

Following is a list of conifers that responded well to either eighty or forty mg./l. (solution treatment) or twelve mg./g. (powder treatment) strengths of indolebutyric acid:

*Abies Veitchii*.  
*Abies Pinsapo*.  
*Cryptomeria japonica*.  
*Chamaecyparis obtusa aurea* Crippsii.  
*Chamaecyparis obtusa compacta* den Ouden.  
*Chamaecyparis obtusa erecta*.  
*Chamaecyparis obtusa filicoides*.  
*Chamaecyparis obtusa filiformis*.  
*Chamaecyparis obtusa gracilis*.  
*Chamaecyparis Lawsoniana Fletcheri*.  
*Chamaecyparis pisifera filifera*.  
*Chamaecyparis pisifera filifera aurea*.  
*Chamaecyparis pisifera plumosa*.  
*Chamaecyparis pisifera plumosa aurea*.  
*Chamaecyparis pisifera plumosa nana*.  
*Cupressus macrocarpa*.  
*Juniperus chinensis japonica*.  
*Juniperus chinensis Pfitzeriana*.  
*Juniperus chinensis pyramidalis*.  
*Juniperus communis Hillii—Dwarf*.  
*Juniperus communis montana*.  
*Juniperus conferta*.  
*Juniperus excelsa*.  
*Juniperus horizontalis*.  
*Juniperus rigida*.  
*Juniperus Sabina tamariscifolia*.  
*Juniperus virginiana Keteleeri*.  
*Juniperus virginiana tripartita*.  
*Pinus Bungeana*.  
*Pinus Mugho Slavini*.  
*Picea excelsa Barryi*.  
*Picea excelsa compacta Asselyn*.  
*Picea excelsa cupressina*.  
*Picea excelsa echiniformis*.  
*Picea glauca conica*.  
*Picea Omorika*.  
*Picea pungens*.  
*Sequoia gigantea*.  
*Taxus baccata fastigiata*.  
*Taxus baccata glauca*.  
*Taxus baccata imperialis*.  
*Taxus baccata repandens*.  
*Taxus cuspidata*.  
*Taxus cuspidata compacta*.  
*Taxus cuspidata nana*.  
*Taxus media Hatfieldii*.  
*Taxus media Hicksii*.  
*Thuja occidentalis Ellwangeriana*.  
*Thuja occidentalis Ellwangeriana aurea nana*.  
*Thuja occidentalis filiformis*.  
*Thuja occidentalis globosa*.  
*Thuja occidentalis globosa nana*.  
*Thuja occidentalis Hoopesii*.  
*Thuja occidentalis Hoveyi*.  
*Thuja occidentalis hudsonica*.  
*Thuja occidentalis spiralis*.  
*Tsuga canadensis*.  
*Tsuga canadensis Dawsoniana*.  
*Tsuga canadensis minima*.  
*Tsuga canadensis pendula*.  
*Tsuga Sieboldii*.

#### Rhododendrons.

Although not evergreen, the deciduous rhododendrons or azaleas are

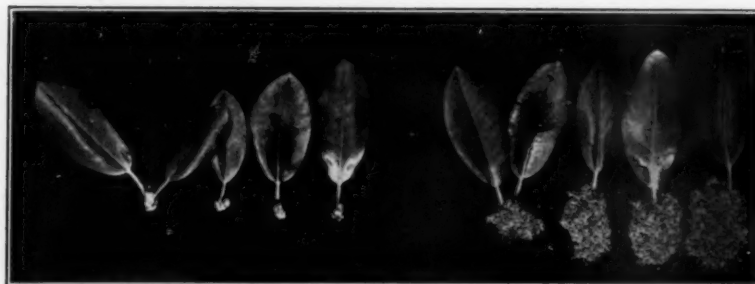


Figure 3. *Rhododendron* "leaf-mallet" cuttings. Left, control cuttings. Right, cuttings treated with a twelve mg./g. indolebutyric acid powder before planting.

included in this report because both groups are of the same genus. "Heeled" cuttings of the deciduous rhododendrons, taken early in the summer after the new growth had developed, proved to be the best type of cutting for good rooting. Cuttings taken in the fall or winter failed, in most cases, to respond to treatment. Table I shows a list of azaleas, including some native varieties, which responded well to treatment with indolebutyric acid powders. Different strengths or concentrations of the indolebutyric acid were necessary to meet the concentration requirements of the different species.

In regard to the broad-leaved evergreen rhododendrons, including the garden hybrids, a high concentration of the substance was necessary. Either eighty or forty mg./l. for solution treatment or twelve mg./g. for the powder treatment had to be used to induce good rooting. Terminal shoots without a flower bud, cut through the basal ring, showed good rooting if taken after the new growth had hardened up and before cold weather had caused curling of the leaves. In our section this period included September, October and the early part of November. Another type of cutting proved to be even more easily rooted than the terminal cutting. This was the "leaf-mallet" cutting (Fig. 3). This is simply a leaf with an axillary bud on a piece of stem cut about one-fourth of an inch above and below the point of the leaf's attachment to the stem. Only "leaf-mallet" cuttings of the current year's growth responded satisfactorily. This type of cutting rooted quicker and gave a higher percentage of rooting than the terminal cutting. When planting the leaf cuttings it is important not to cover any of the leaf blade with the rooting medium. The whole mallet, including the bud, must be dipped into the powder preparation or immersed in the solution when treating. On varieties where cutting material is scarce this mallet-type cutting should prove economical.

### Holly.

*Ilex* constitutes one of the most important genera of our evergreen plants and considerable work has been done concerning the propagation of holly from cuttings. Shoots of the current year's growth cut through the basal ring proved to be the best type of cut-

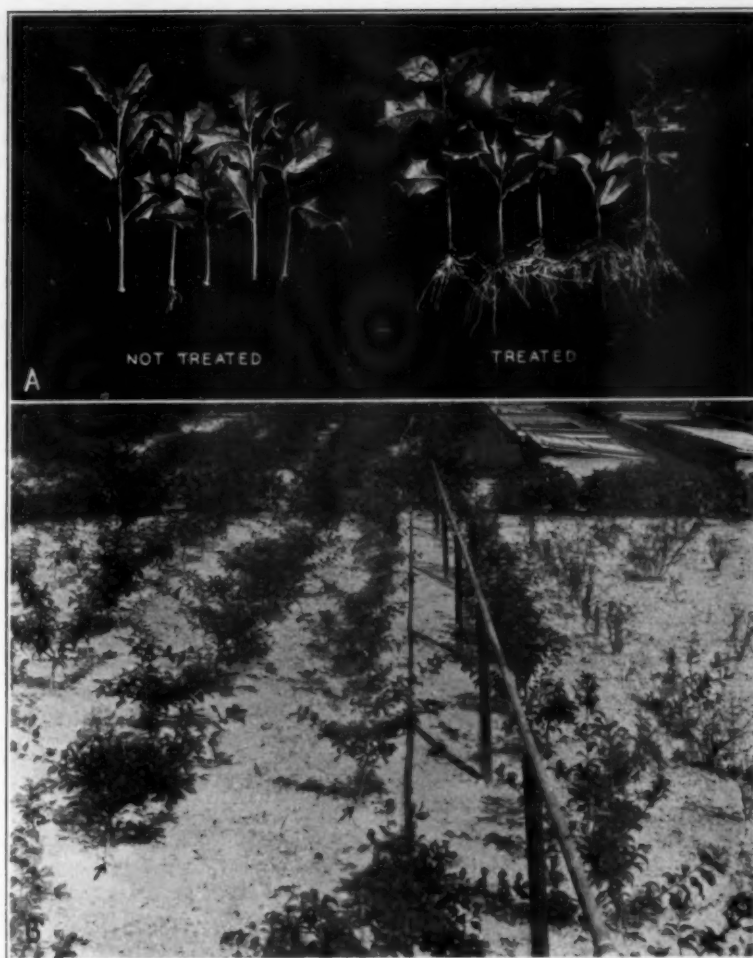


Figure 4. *Ilex opaca*. A. Cuttings three months after treatment with indolebutyric acid. B. Row on left, plants grown from cuttings rooted in 1935 by treatment with indolebutyric acid. Middle row, plants grown from grafts made in 1936. Row on right, plants grown from cuttings rooted in 1936 by treatment with indolebutyric acid.

ting. On crenata varieties these cuttings can be either "heeled" or cut from the parent plant. With the exception of *Ilex glabra* and *Ilex crenata* varieties, a high concentration of indolebutyric acid, either twelve mg./g. for the powder or forty to eighty mg./l. for solution, was necessary to induce good rooting. The two species mentioned above responded well to two mg./g. of powder and twenty mg./l. of solution, but were injured by higher concentrations.

Since the introduction of *Ilex opaca* to the northern section of our country, this species probably commands the greatest interest of all the hollies. Tests have been run frequently and repeatedly on *Ilex opaca* and it has been definitely proved that root-inducing substances will cause good rooting if applied correctly (Fig.

4). Removal of the basal buds on *Ilex opaca* cuttings causes an increase in the number of roots induced by treatment. Wounding near the base also causes an increase in the number of roots formed. If all leaves are removed from *Ilex opaca* cuttings, little or no rooting occurs. Thus it is important to select cuttings with healthy leaves, as diseased or injured leaves will drop before rooting occurs. *Ilex opaca* cuttings can be taken at almost any time of the year with the exception of early summer when the new growth is developing.

Following is a list of other *Ilex* species which have been successfully propagated by the application of indolebutyric acid in either powder or liquid form:

*Ilex Aquifolium* and varieties.  
*Ilex cornuta*.  
*Ilex crenata*.



*Ilex crenata* bullata.  
*Ilex crenata* Helleri.  
*Ilex crenata* nummularia.  
*Ilex glabra*.  
*Ilex Peryi*.  
*Ilex verticillata*.

### Other Evergreens.

In this category are included all evergreen plants not mentioned previously, whether hardy or not in this area, that have been successfully propagated by cuttings treated with indolebutyric acid. Some genera, for example heather and pachysandra, are hardy in this locality; others like gardenia and camellia must be grown under glass. In Table II are found listed the genera and species successfully rooted, with information concerning their concentration requirements. It was found that no single strength of the indolebutyric acid preparations could be recommended for all the genera. In some cases only the solution treatments are given. As a rule, genera that required a high solution treatment needed a correspondingly high powder treatment to induce a similar rooting response.

For *Camellia japonica* alba-plena it was found that the initial treatment often caused the growth of large callus knobs without inducing roots. However, a second treatment after the callus knobs had formed caused good root growth. This second treatment is known as retreatment. For many genera that failed to respond to the initial treatment, but formed callus, this method proved helpful for inducing root formation.

### Conclusion.

Considering results obtained on evergreen cuttings during the past three years, there is no question but that indolebutyric acid is helpful and beneficial in inducing roots. Cuttings of a few genera, for example cedar and pinus, have so far failed to respond to treatment, but with further experimental work it is safe to predict that they too can be successfully propagated by cuttings. Graftage, to a large degree, can be eliminated in the propagation of many evergreens. Many limiting factors must be taken into consideration before successful results can be obtained by the application of root-inducing substances on evergreen cuttings. The time of year at which the cuttings are taken, the type of cutting used, the temperature of the propagating house and the rooting medium, the care of the cuttings during the rooting period and the

TABLE I.  
 Rhododendron Varieties Responding to Indolebutyric Acid  
 Powder Treatments.

Variety	Date treated	Date examined	No. days in medium	Per Cent Rooting		Indolebutyric acid, mg./g.
				Treat.	Control	
<i>Arborescens grandiflora</i> .....	June 7	July 14	37	75	25	12
<i>Arborescens</i> .....	May 31	July 15	45	100	25	12
<i>Arborescens</i> .....	July 14	Aug. 16	33	100	0	5
<i>Calendulaceum</i> .....	May 31	July 24	54	75	25	12
<i>Canadense</i> .....	June 21	Sept. 21	92	25	0	12
<i>Canescens</i> .....	June 21	Sept. 21	92	75	0	12
<i>Collettianum</i> .....	June 21	Sept. 21	61	50	0	12
<i>Dauricum</i> .....	July 14	Sept. 5	53	100	25	5
<i>Gandavense hybrida</i> .....	June 7	July 24	47	75	0	12
<i>Kurume</i> vars.*.....	June 23	July 28	34	100	100	2
Christmas Cheer.....						
Coral Bells.....						
Flame.....						
Pink Pearl.....						
Snow.....						
<i>Molle</i> .....	June 7	July 24	47	25	0	12
<i>Molle</i> .....	July 14	Sept. 21	68	50	0	2
<i>Mucronatum</i> .....	May 31	July 3	33	100	100	2
<i>Mucronulatum</i> .....	June 23	Aug. 8	46	75	0	12
<i>Obtusa Hinodegiri</i> .....	June 23	July 24	31	100	75	2
<i>Obtusa Kaempferi</i> .....	June 21	July 28	37	100	25	2
<i>Roseum</i> .....	July 14	Sept. 21	68	50	0	12
<i>Schlippenbachii</i> .....	May 24	Aug. 8	76	75	0	12
<i>Vaseyi</i> .....	June 21	Sept. 5	76	75	0	2
<i>Viscosum</i> .....	June 7	July 24	47	50	0	15
<i>Yedoense poukhanense</i> .....	July 14	Aug. 5	22	100	25	2
<i>Yedoense poukhanense</i> .....	June 23	July 24	31	100	0	2

\*Appear to be tolerant to a range of concentrations.

strengths and methods of application of the substances all are important controlling factors. With the exception of temperature, these factors vary for the different genera. Most propagators are aware of the importance of these controlling factors and realize that slight modifications of the methods recommended might be necessary for their particular location in

respect to growing conditions. The methods described in this report have proved successful. We have tried to make the procedure of propagating with growth substances as simple as possible. If applied carefully and according to recommendations, indolebutyric acid will prove to be a real aid to commercial growers and to laymen as well.

TABLE II.  
 Concentrations of Indolebutyric Acid in Both Solution and Powder  
 Forms Giving Best Rooting on Evergreens.

Species	Indolebutyric acid solution, mg./l. for 24 hrs.	Indolebutyric acid and talc powders, mg./g.
<i>Abelia grandiflora rosea alba</i> .....	10	2
<i>Andromeda japonica</i> .....	20	2
<i>Arctostaphylos Uva-ursi</i> .....	40	12
<i>Buxus Harlandii</i> .....	20	..
<i>Buxus microphylla koreana</i> .....	20	12
<i>Buxus microphylla japonica</i> .....	20	12
<i>Buxus sempervirens</i> .....	40	..
<i>Buxus sempervirens arborescens</i> .....	40	..
<i>Buxus sempervirens Handsworthii</i> .....	40	12
<i>Cactus (Opuntia)</i> .....	20	..
<i>Calluna vulgaris</i> vars. (heather).....	20-40	12
<i>Camellia japonica alba-plena</i> .....	80-40	12
<i>Camellia japonica Chandlerii elegans</i> .....	80-40	12
<i>Erica</i> (heath).....	40	12
<i>Gardenia</i> .....	40	2
<i>Hedera Helix</i> vars. (English Ivy).....	10	2
<i>Pachysandra terminalis</i> .....	80	12
<i>Privet (Ligustrum ovalifolium)</i> .....	80	12



# Boat Trip to Be Convention Feature

*All-day Excursion Through New York Harbor and Up the Hudson River Planned for Visitors to A. A. N. Convention Next July*

The steamship Peter Stuyvesant, of the Hudson River Day Line, has been chartered for the exclusive use of members of the American Association of Nurserymen and their guests for an all-day trip July 24, during the sixty-fifth annual convention, at New York city, according to the announcement of Charles Hess, chairman of the local arrangements committee.

An incomparable outing has been arranged as one of the headline entertainment features of the convention in July. Because so much of scenic and historic interest can be seen on this trip, besides providing ample social entertainment, the excursion has been extended to a day-long program. Tentative plans call for departure from the pier at West Forty-second street at 10:30 a. m. The boat will travel down the river, through the harbor, around the lower end of Manhattan island and up the East river as far as the Bronx-Whitestone bridge. Then it will retrace its course down around the Battery and up the Hudson river to West Point.

The United States Military Academy at West Point has promised a landing permit for the nurserymen and an opportunity to witness the parade of the corps of cadets at 5:30 p. m. After the parade there will be a moonlight trip down the Hudson back to the Forty-second street pier.

The steamship Peter Stuyvesant is an ideal excursion boat, equipped with cafeteria and dining room, a



United States Military Academy at West Point.

large dance floor with dance music provided and, last but not least, a barroom.

The first portion of the trip will enable the visitors to note the aspects and activities of the great metropolis. Shortly after leaving the pier will be seen the ventilators of the Lincoln tunnel passing beneath the river and beyond it the Pennsylvania railroad tunnel. Piers of great steamship lines will be seen—Cunard, Grace, United States, Southern Pacific and other lines. Two older passages under the river will be seen, the Holland tunnel and the Hudson tubes.

Rounding the lower end of Manhattan island, visitors will see the famous aquarium, historical Battery park, the Statue of Liberty and Ellis island in the bay and a view of Governors island.

Passing up the East river, passengers will be able to look up Wall street, the country's financial center, while near at hand will appear the Fulton fish market. On the Brooklyn side will be seen the United States navy yard. Going under the Brooklyn, Manhattan and Williamsburg bridges, the visitors will pass Bellevue hospital and Welfare island. The East River park will be seen and, farther on, Carl Schurz park, with Astoria park on the Queens' side of the river.

Other famous bridges passed are the Queensboro bridge, Triboro bridge and Hell Gate bridge. To the right will appear the world's fair and the new La Guardia airport. Randalls island and Rikers island will be passed before the boat turns in its course at the Bronx-Whitestone bridge to retrace its way around the



Steamer Passing Through the Hudson Highlands.



Excursion Steamer Peter Stuyvesant.

island and up the West river, or Hudson river proper.

Above Forty-second street are the foreign steamship lines' piers—Hamburg-American, French, Italian and Furness-Bermuda. The eye can follow Riverside drive and Riverside park, succeeded by the Henry Hudson parkway. Glimpses will appear of Columbia University, Grant's tomb, Medical Center and, after passing the George Washington bridge, Fort Tryon park and Inwood Hill park, while on the Jersey side stretches the Palisades Interstate park.

Up above New York city appear villages famous in history and American literature. First is Yonkers, then Irvington, where is "Sunnyside," the home of Washington Irving, and then Tarrytown, the site of Irving's "The Legend of Sleepy Hollow." On the west side of the river appears Hook mountain, 610 feet high, and farther up, High Tor, 820 feet high, while the boat passes Ossining, the site of Sing Sing prison.

Farther up the river is Stony Point, celebrated in American history for its capture by Mad Anthony Wayne, and then Verplanck Point, where Baron Von Steuben drilled American troops.

Above Peekskill is Bear mountain and the famous Bear Mountain bridge.

Dunderberg mountain is followed by Anthony Nose mountain, 1,228 feet high, and Storm King mountain, 300 feet higher, and finally Breakneck mountain, 1,787 feet high. Constitution island, Bannerman's island and Newburgh bay are historic points and then, the climax of the trip, the United States Military Academy at West Point.

The trip homeward by moonlight will give a somewhat different view of these famous sights, impressing on the visitors the mementoes of early historic days in this nation's history and equally famous structures of the modern era.

### SPECIAL TRAIN?

To those traveling to the A. A. N. convention at New York next July, William J. (Bill) Smart, perennial transportation committee chairman, proposes a special train from Chicago to New York over the New York Central lines, picking up members and their families from Indiana, Michigan and Ohio en route, featured by a stop at Niagara Falls. At that famous scenic point an afternoon and evening would be spent, the afternoon on sight-seeing busses for a view of the many wonders of the falls, rapids and whirlpools, and the evening on the Canadian side for a view of the falls illuminated in colors, one of the most gorgeous sights in the world.

For those who desire, return over the Pennsylvania railroad by way of Washington, D. C., with a stopover at the nation's capital, can be arranged.

The program is so far tentative and depends upon the early response of those interested in such a trip. The special train would probably leave Chicago Friday evening, arrive at Niagara Falls before noon the following day and reach New York city early Sunday, the day convention entertainment will begin.

The good-fellowship and opportunity to become better acquainted that marked the special train to

Portland last summer gave rise to the proposal of the special train this year, even though the trip is of shorter duration. If you want Bill Smart to make up such a special train, mail him the coupon on this page immediately.

### LANDSCAPE PROGRAM.

Preparations are already under way for the program of the landscape nurserymen's group at the convention of the American Association of Nurserymen next July. Leaders of discussions have been selected, and members are asked to communicate with them to afford any help possible to make the discussions successful and helpful. The leaders and their subjects are: Ralph Griffing, Beaumont, Tex., exchange of photographs of landscape work; Clarence O. Siebenthaler, Dayton, O., office management, forms and records; W. A. Natorp, Cincinnati, O., advertising; Harold Seyler, Weiser Park, Pa., extending the planting season; Owen G. Wood, Bristol, Va., landscape architects; John Surtees, Ridgefield, Conn., cost accounting.

### GOVERNMENT CONTRACTS.

Appearing before the Senate subcommittee on agricultural appropriations, Senator Chan Gurney, of South Dakota, arguing for commercial nurserymen of the country, succeeded in having inserted in the agricultural appropriations bill the following amendment, which applies to any funds appropriated for production or procurement of nursery stock by the soil conservation service or by the forest service under the Norris-Doxey, Clarke-McNary and soil conservation acts:

"Provided that any part of this appropriation allocated for the production or procurement of nursery stock by any federal agency, or funds appropriated to any federal agency for allocation to cooperating states for the production or procurement of nursery stock, shall remain available for expenditure for not more than three fiscal years."

The bill is now in conference and if the amendment is approved by the House, it will enable these federal agencies to contract with commercial nurserymen for their nursery stock needs, for delivery not more than

## SPECIAL TRAIN COUPON

William J. Smart,  
Dundee, Ill.

I am interested in the special train to the A. A. N. convention at New York described in the American Nurseryman of April 15. Number in my party probably will be .....

I (do not) wish to stop over in Washington, D. C., on the way home. (Mark which.)

Please send me further details.

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three fiscal years in the future. The lack of this authority to contract has always been a federal agency argument to justify government-owned and operated nurseries and, according to Richard P. White, executive secretary of the American Association of Nurserymen, the acceptance of this amendment will eliminate that defense.

### JAP BEETLE BAN STANDS.

As requested by nurserymen at the recent hearing, Secretary of Agriculture Wallace has signed an order calling for the continuance of the federal Japanese beetle quarantine under the supervision of the bureau of entomology and plant quarantine.

Officials of the Department of Agriculture said the regulated area will be extended to include all of Caroline, Harford and Talbot counties; some additional townships in Carroll, Frederick, Washington and Wicomico counties and Baltimore, all in Maryland; all of Belmont, Guernsey, Medina and Wayne counties and a part of Lake county in Ohio; all of Clarion county and parts of Venango and Erie counties in Pennsylvania; all of Brooke and Jefferson counties and part of Wood county in West Virginia, and Erwin township in Steuben county, New York. The newly added area includes also the outlying cities of Corry and Erie, Pa., and Charleston, W. Va.

### TO STUDY TRADE BARRIERS.

Secretary of Commerce Harry L. Hopkins announced early this month that a program aimed at promoting research by graduate students in American universities and colleges on the social and economic ramifications of interstate and municipal trade barriers has been launched by the interdepartmental committee on interstate trade barriers.

Letters were mailed by Paul T. Truitt, assistant to Secretary Hopkins and chairman of the interdepartmental committee, to approximately 170 colleges and universities throughout the United States urging the adoption of trade barrier research as part of the graduate school curriculums.

The program would be coordinated with the cooperative business research work already under way between the Department of Commerce and schools of business of state universities.

## LAST CALL!

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6 to 9 ins., s.	.....	.60	4.50	12 to 18 ins., c.	.....	.80	7.00
9 to 12 ins., s.	.....	.80	7.00	12 to 18 ins., c.	.....	1.00	9.00
12 to 15 ins., s.	.....	1.25	10.00	18 to 24 ins., c.	.....	1.50	12.00
LIGUSTRUM AMURENSE.				12 to 18 ins., hedging	.....	2.00	15.00
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Field-grown, l.o.				2 to 3 ft., hedging	.....	3.50	30.00
6 to 15 ins.	.....	\$0.50	\$4.50	SYMPHORICARPOS VULGARIS, Coralberry.			
6 to 12 ins., 2 br., up.	.....	.60	5.00	6 to 12 ins., c.	.....	\$0.60	\$5.00
12 to 24 ins., 3 br., up.	.....	.80	7.00	12 to 18 ins., c.	.....	.80	6.00
12 to 18 ins., 3 br., up.	.....	1.25	10.00	18 to 24 ins., c.	.....	1.00	8.00
18 to 24 ins., 3 br., up.	.....	1.50	12.00	WEIGELA.			
2 to 3 ft., 4 br., up.	.....	2.25	18.00	Varieties:			
LIGUSTRUM OBTUSIFOLIUM.				Amabilis, light pink.			
Ibota Privet.				Rosa, pink.			
12 to 18 ins., s.	.....	\$0.80	\$6.00	6 to 12 ins., c.	.....	\$1.25	\$10.00
18 to 24 ins., s.	.....	1.00	8.00	12 to 18 ins., c.	.....	1.50	12.00
6 to 12 ins., 2 br., up.	.....	.60	5.00	18 to 24 ins., c.	.....	2.00	15.00
12 to 18 ins., 2 br., up.	.....	1.00	8.00	12 to 18 ins., tr., br.	.....	3.00	25.00
12 to 18 ins., 3 br., up.	.....	1.25	10.00	18 to 24 ins., tr., br.	.....	4.00	30.00
18 to 24 ins., 3 br., up.	.....	1.50	12.00	WEIGELA VARIEGATED.			
2 to 3 ft., 3 br., up.	.....	2.50	20.00	Pink flower, variegated.			
LONICERA FRAGRANTISSIMA.				6 to 12 ins., c.	.....	\$1.25	\$10.00
Winter Honeysuckle.				12 to 18 ins., c.	.....	2.00	15.00
6 to 12 ins., c.	.....	\$1.25	\$10.00	18 to 24 ins., c.	.....	2.50	20.00
12 to 18 ins., c.	.....	1.50	12.00	2 to 3 ft., c.	.....	3.50	30.00
18 to 24 ins., c.	.....	2.00	15.00	12 to 18 ins., well br.	.....	3.50	30.00
12 to 18 ins., 3 br., up.	.....	3.00	25.00	18 to 24 ins., well br.	.....	4.50	40.00
18 to 24 ins., 3 br., up.	.....	4.00	35.00	2 to 3 ft., well br.	.....	6.50	60.00
2 to 3 ft., 4 br., up.	.....	5.00	40.00	ACER DASYCARPUM, Silver Maple.			
3 to 4 ft., 4 br., up.	.....	8.00	.....	6 to 12 ins., s.	.....	\$0.40	\$3.00
(Branched stock is 2 years old.)				12 to 18 ins., s.	.....	.50	4.00
SPIRÆA ARGUTA, Garland Spiræa.				4 to 5 ft., br.	.....	5.00	40.00
12 to 18 ins., hedging	.....	\$3.50	\$30.00	5 to 6 ft., br.	.....	6.00	50.00
18 to 24 ins., hedging	.....	4.00	35.00	6 to 8 ft., br.	.....	10.00	.....
12 to 18 ins., 2-yr., tr.	.....	5.00	45.00	CERCIS CANADENSIS, American Redbud.			
18 to 24 ins., 2-yr., tr.	.....	6.00	50.00	18 to 24 ins., s.	.....	\$1.25	\$10.00
2 to 3 ft., 2-yr., tr.	.....	8.00	.....	2 to 3 ft., s.	.....	2.00	15.00
3 to 4 ft., 2-yr., tr.	.....	10.00	.....	3 to 4 ft., tr.	.....	15.00	.....
SPIRÆA PRUNIFOLIA.				4 to 5 ft., tr.	.....	20.00	.....
2 to 3 ft., tr.	.....	\$15.00	.....	5 to 6 ft., tr.	.....	30.00	.....
3 to 4 ft., tr.	.....	20.00	.....	6 to 8 ft., tr.	.....	40.00	.....
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				6 to 12 ins., s.	.....	\$0.40	\$3.00

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# Excerpts from a Plantsman's Notebook

*Further Notes on the Culture, Propagation and Uses of Many Kinds of Plants Given Garden Trial in Years Past—By C. W. Wood*

## Bleeding Heart.

(March 10, 1940.) The bleeding heart, *Dicentra spectabilis*, needs no introduction to plant growers, for it has, until recently, steadily grown in favor since Robert Fortune brought it to England in the fourth decade of the nineteenth century. It is now known to practically every gardener, though for various reasons (lack of knowledge of its cultural needs, among them) it seems not to appear in gardens so frequently as it did thirty or forty years ago. Nor do commercial growers, except a few specialists, make as much of it as they could. Speaking of cultural needs reminds me that the plant is much more adaptable than is supposed. It is best, of course, in rich moist soil, but it will persist in a fairly poor medium and in quite dry soil if it is supplied with moisture during the growing and blooming period. With lack of moisture come an early dying down of the foliage and an increasing lack of vigor.

The principal reason, we are told, why the plant is not more often seen in small nurseries is because it is hard to propagate. It has to be admitted that it does not lend itself to rapid multiplication so well as some other plants, yet it cannot truthfully be called difficult. Anyone with ordinary facilities should be able to carry out the following program: Dig clumps just before growth starts in the open. After washing the soil away from the roots to make the work easier, divide the clumps into as many pieces as there are buds which can be cut away with a few roots attached. Plant the divisions in flats of light soil and keep them in a frame, where moisture and other growing conditions are under control, until they are strong enough to line out. Often a piece will show up with several buds but not enough roots to take care of all the buds; these pieces may be potted up and, after new growths are large enough to handle, they may be rubbed off and rooted in a shaded propagating bench. Save all roots not needed on the divisions; cut these into 3-inch lengths and place them in flats of light soil. Not all will make plants, of course, but nearly always there will

be a sufficient number to pay for the work.

## *Corydalis Angustifolia.*

(April 26, 1936.) I have no idea how many *corydalis* species I have grown, but I do know that I have yet to see one that is not a desirable plant. Botanists account for ninety species and I doubt not that every one could be used somewhere in the garden and to its betterment. The little Caucasian, *C. angustifolia*, which graced a sunny corner of the rock garden this spring, is further confirmation of the good opinion formed of the genus during former years. "Bilaterately divided," the botanists say in describing its foliage, which is their way of saying that each leaf is cut into two sets of three leaflets. And that makes a beautiful ferny effect, which, coupled with their pale glaucous green color, produces a truly lovely picture. The long-spurred fumitory flowers in loose racemes at the top of 6-inch stems are, in their creamy to flesh color, splendidly complementary to the blue-green leaves. The friend in South Carolina who sent me the seeds said the plant bloomed there in February; here in northern Michigan it comes into flower within a month of the passing of winter, adding another and pleasing note to the early spring scene. Like nearly all precocious flowers, this is a plant for a sunny protected spot where it can feel the first caresses of the return-

ing sun. It is easy to grow from seeds and apparently, like many of its kind, inclined to be short-lived.

## Bloodroot.

(August 25, 1939.) A little planning and thought often means the difference between success and failure in a business, and especially so in the nursery trade. That observation was prompted by a recent visiting trip among the neighborhood nurseries of a midwestern state. In one town of 5,000 or so, where two nurseries were competing for the local business, one was swarming with activity, while the other was in the usual August doldrums. When I asked the manager of the first concern how he contrived to keep up interest during August, he replied that bloodroots did it. I knew, of course, that he was speaking in parables, and then the truth dawned on me when he added that he planned ahead for something to feature every month of the open season—something that would draw customers into his place not only when the fever was on them in spring, but some item that would attract them throughout the year. His planting of bloodroots attracted every visitor in spring, and from it many orders were booked for August delivery. When August came around the customers were notified on an attractive card. And they were leaving his nursery when I was there with a number of things in addition

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to bloodroots. If room was available it could be related how he makes his spring crocus display draw customers in September, his June iris show pull them in July, etc., but the idea has probably been made clear in the foregoing. All it takes, he says, is careful planning and liberal use of the printers' art.

#### Silene Pumilio.

(March 11, 1940.) These notes were prompted by the arrival from Europe this morning of a lot of seeds, among which appeared a packet marked *Silene Pumilio*. It brought back a host of memories, both pleasant and otherwise, and sent me to my notebooks to freshen up a few of the pictures. Unfortunately, I did not locate these particular notes; so I shall have to rely on a rather faulty memory. First of all, I recall that I have had the same plant under at least five names—*Saponaria libanotica*, *Saponaria Pumilio*, *Saponaria pumila*, *Saponaria pulvinaris* and *Silene Pumilio*. I have not followed the matter closely, but as I recall it now, these five names can be reduced to two, the last and the next to last, representing two distinct plants, *Saponaria pulvinaris* being an Asiatic plant with bright pink flowers in cymes on 2-inch stems in late June or July, while *Silene Pumilio* comes from the Alps and has solitary bright rose flowers, practically stemless, in June. But of more importance, I suspect, to plant growers is the fact that, whether it be put among silenes or with the soapworts, it is a good plant for American conditions. Writing from memory, may I submit the following:

After one or more rather disastrous experiences with it in my alkaline soil, I read or someone told me that it grew on granitic peaks in the Austrian Alps; transferring it to a slightly acid soil, low in fertility and plentifully supplied with gravel, proved to be the answer. Given such treatment and full sun, with an artificial supply of moisture during dry weather or, in the absence of the latter, some shade during the middle of the day, it should be satisfied with the climate of eastern United States. It has always been a slow grower with me, 3-year-old plants usually being about the size of a silver dollar, though it is said to get a foot or more in diameter with age, but that must take a long time. The flat mat of narrow grasslike leaves, seldom over an inch thick, is pleasing



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throughout the summer, and when it sets out its ring—the flowers are usually borne along the edge of the circular mat—of bright rose-colored flowers, large for the size of the plant, it is one of the rock garden's brightest ornaments. Seeds are always hard to find, but fresh ones, when obtainable, are easily handled. The plant may also be grown from cuttings taken while the growths are still new and soft.

#### **Aquilegia Pyrenaica.**

(July 19, 1935.) I have a weakness for all columbines, and, notwithstanding the shortness of life found in so many species, I should, if I were building a new garden, make provisions for many of them. And among them the little Spanaird, *Aquilegia pyrenaica*, would surely be included. In my experience it has not been the easiest of the dwarf species, as is sometimes stated in catalogues, but it is easy enough in a well drained, light soil that has been sweetened up with a little lime, and in light shade. It is longer-lived than most columbines and would be worth growing for its large, deep blue flowers with centers of conspicuous yellow stamens, even if it had to be planted every year. Grow it from seeds.

#### **Lychnis Viscaria.**

(December 4, 1933.) It is only natural that so showy a plant as the German catchfly, *Lychnis Viscaria*, which is native to most parts of Europe, should early have attracted the attention of gardeners. Anyway, we find it mentioned in the early garden literature of that continent, and it is said to continue to hold the public's fancy to this day. Here it has had a rather checkered career, having attained not a little popularity until gardeners were led astray by a few pastel enthusiasts, after which anything with so bright a color as this catchfly was put on the black list. The pendulum is apparently swinging back to normal now, and we may soon see these lively shades popular again. Even now sales of some of its forms, especially a double-flowered one known as *L. Viscaria splendens flore pleno*, are picking up, according to reports.

The plant's long association with gardeners has yielded several color forms, including white, pink and red, as well as a dwarf one of four or five inches instead of a foot in the type, and the double one mentioned pre-

viously. At present the latter perhaps holds, in its long production of double rose-red flowers on foot-tall stems, most promise for American plant growers. Easily satisfied in poor dry soil and readily propagated by division, it should gratify both the gardener and the nurseryman.

#### **Polygonum Equisetiforme.**

(November 1, 1934.) In a warmer climate than we have in northern Michigan, it would be counted good fortune to run into so pleasing a plant as *Polygonum equisetiforme*, especially in a genus so full of poor plants as we find among the knotweeds. I do not know how much cold it can stand—it is much too tender for this climate—but its Corsican home tells me it could not stand too much frost, perhaps Kentucky in the middle west being its northern limit. That is merely conjecture, however, and it may do much better.

The species name, *equisetiforme*, will tell the experienced grower to look for a plant resembling the horsetails (*equisetum*) and the actual plants do just that, their slender 2-foot or less (usually less) stems, clothed in tiny, narrow leaves at wide intervals quite simulating those plants. That is in itself quite unusual and also ornamental, but the real show comes in late summer, when each branch is strung with small white flowers with a green circle around a bunch of yellow stamens.

I cannot say from experience what its cultural needs are, because my experience with it has been in pots. The literature says, however, that it favors dry, rocky slopes in full sun in its native haunts. A sunny border among plants of lower stature would no doubt make a suitable home for it. If it is used in the rock garden, one could

follow Farrer's advice to plant it where its slender stems could fall over a rock. How that is to be contrived I cannot say, for it was quite upright in its growth here.

#### **Eupatorium Aromaticum.**

(September 21, 1931.) Two thoroughworts of special merit as fall-flowering subjects are *Eupatorium aromaticum* and its variety *melisoides*, the latter being known as *E. Fraseri* in some quarters. The specific name is not exactly descriptive, according to my nose, neither plant being appreciably aromatic. They are, nevertheless, good plants both for landscape and cut flower purposes, blooming over a long period from August to October, or until stopped by frost. The flowers are white in large terminal heads. Judged by looks, they are perhaps a little less desirable than the white snakeroot, *E. urticifolium*, but their ability to thrive and give a good account of themselves in poor sandy soil is greatly in their favor. These thoroughworts are so easily and rapidly increased by division that there is seldom any need for other means of propagation.

#### **MALUS THEIFERA.**

*Malus theifera*, the tea crab, is one of the most beautiful of all of the flowering crabs when in bloom. It is a small tree, with stiff, spreading branches, growing to a height of about twenty-five feet. In habit of growth it is irregular and picturesque, with its sparsely placed branches and few branchlets. The tea crab is native of China and was introduced into this country about 1900. Unfortunately, it has not been extensively used, even though its good qualities are sufficient to merit it. The plant apparently is



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8 to 10 ins., 2-yr., 100. field-grown 150.00 per 1000  
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perfectly hardy in northeastern and central states.

The leaves are from two to four inches long, sharply toothed, glossy green and of a firm texture. This leathery leaf condition and the irregular growth of the plant are the best identification characteristics.

The flowers are produced in clusters of three to seven, are pinkish-white and slightly fragrant. They are produced abundantly along the sparsely branched stems, resembling the flowering cherry in general appearance, rather than crab. The individual flowers may be one and one-half inches or more across. The tea crab is not so outstanding in fruit as many of the other flowering crabs. The fruits are relatively small and greenish-yellow, with a red cheek.

This species of flowering crab is not particular as to soil requirements, doing well under general garden conditions. It will stand either sun or partial shade and requires little pruning other than at the start to get a well formed branch structure.

Pests are not troublesome; in fact, the pest problem is much less important with the flowering crabs than with the Japanese cherries.

Propagation of the tea crab is usually by whip grafting onto apple seedlings in January or February. Six-inch to 8-inch scions are used and grafted onto 3-inch to 4-inch pieces of the rootstock. They are stored over winter in moist sand and peat or sawdust and lined out in the spring. They should be set deeply to encourage scion root formation. Plants can be propagated by budding in the summer.

The use of this plant is mainly as a small specimen tree. It can be used in the border to give a variation in the sky line and to break the monotony of a border planting of shrubs. It certainly is one of the best of the small flowering trees and should be used more extensively. L. C. C.

WHILE a magazine like Real Gardening constantly educates the public to recognize what nurserymen do for the amateurs, especially important in this respect is the article, "You and Your Nurseryman," in the April issue, by Nelson M. Wells, landscape architect, who gives experienced counsel to those who purchase plants.

## LINING-OUT STOCK

	Per 100	Per 1000
Abies arizonica, 3 to 4 ins.	\$3.00	\$25.00
Abies concolor, 3 to 4 ins.	2.50	20.00
Abies Veitchii, 3 to 4 ins.	2.50	20.00
Berberis Thunbergii atropurpurea, 4 to 8 ins.	2.00	15.00
Cornus florida, 12 to 15 ins.	2.00	15.00
Crataegus Oxyacantha, 8 to 12 ins.	2.50	20.00
Cydonia japonica, 8 to 10 ins.	2.50	20.00
Evonymus alatus, 2 to 4 ins.	2.00	15.00
Fagus sylvatica, 6 to 8 ins.	2.50	20.00
Ginkgo biloba, 4 to 6 ins.	2.00	15.00
Ilex crenata, 2 to 4 ins.	2.00	15.00
Koeleria paniculata, 6 to 8 ins.	3.00	25.00
Picea pungens glauca, 3 to 6 ins.	2.50	20.00
Pinus flexilis, 2 to 4 ins.	2.50	20.00
Pinus Mugho, 3 to 6 ins.	2.50	20.00
Pinus Mugho, transplanted, 4 to 6 ins.	4.00	35.00
Pinus nigra (austriaca), 4 to 6 ins.	2.50	20.00
Pinus resinosa, 4 to 6 ins.	2.00	15.00
Pinus Strobus, 4 to 6 ins.	2.50	20.00
Pinus sylvestris, 4 to 6 ins.	2.50	15.00
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Viburnum theliferum, 6 to 8 ins.	4.00	35.00

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2 to 3 feet.....	35.00
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# This Business of Ours

*Reflections on the Progress and Problems  
of the Nurseryman—By Ernest Hemming*

## PAY GARDENS.

Even before the socialistic trend in governments, so evident at present, free public parks and gardens seemed to be a part of our heritage.

The first paid admission to a park or garden that I can recall came when I was an apprentice at the nurseries of James Dickson & Sons, Ltd., Chester, England. The near-by estate of the Duke of Westminster, Eaton Hall, was thrown open to the public on certain days on payment of one shilling, the proceeds going to support the Chester hospital, or infirmary, as it was called. Doubtless this plan has been followed in many places, the prime object being to raise money for charitable purposes.

Free public parks and gardens are proper, but I am plantsman enough and believe in the capitalistic system enough to feel sure public gardens under private control where admission was charged would pay. If the management did not give a good show for the money, why, the public would stay away, whereas our free public parks and gardens are supported by our taxes and we take what is given to us.

The Magnolia Gardens, Charleston, S. C., are perhaps the oldest and best known of the private gardens where the public is admitted on payment of a fee. There the Indian azalea and *Camellia japonica* come into their full glory, and on that account the gardens have become famous and are known all over the world.

It is not to be supposed that the Magnolia Gardens were laid out with the profit idea in mind; in fact, the reverse is evidently true. Mr. Drayton built his home on the banks of the Ashley river in a country that is low-lying, with cypress swamps and a natural tangled jungle in the elevated spots, not at all a place one would select to plant a garden to draw the crowds.

The grounds immediately around the house were laid out in the conventional manner, but the clearing was gradually extended; paths were cut through the jungle and graded, and along them were planted azaleas

and camellias. Open places were cleared to form lawns; a pool was bridged, and all the good natural growth was preserved. The result is a garden of such poignant beauty when the azaleas are in flower that emotional people weep.

But what copycats people are! Just because azaleas and camellias made the Magnolia Gardens famous, these plants are being used almost exclusively in the pay gardens that are becoming quite numerous in the southern states.

Why does not someone see what he can do with bougainvilleas, bignonias and other showy tropical vines?

You know, Mr. Editor, I have had a number of brainstorms since I got to thinking about these pay gardens. There ought to be at least one in every state to show what plants are really like, or at least one in every region especially favorable to the growing of one particular group of plants.

I believe the cactus family is taken care of in Arizona.

I have heard of a good deal of money being spent to grow rhododendrons where they were not particularly adapted to the locality, but of none risked to grow them where they would be quite at home.

What a garden one could make in the mountains where you would have the hemlock and Rhododen-

dron maximum and *R. catawbiense* as a foundation and then introduce all those marvelous hybrids that few people in America have ever seen in their proper setting! "There's gold in them thar hills."

There are plenty of free flower shows: The cherry blossoms at Washington, D. C.; the lilacs at Rochester, N. Y.; the roses at Portland, Ore.; the apple blossoms at Winchester, Va.; the dogwoods at Valley Forge, Pa.

But, Mr. Editor, if you will give me ten more years of life and \$2,000 a year to spend on from fifty to 100 acres of woodland in Maryland, preferably with a growth of holly and beech, I will grow and plant on it pink and white dogwoods by the 100,000, also the bayberry, red-bud, deciduous azaleas, swamp magnolias and all other good plants indigenous to the locality, and make us a garden the public will travel far and pay to see, in such numbers that we may forget about the governmental form of social security.

## THE APPLE IN LANDSCAPE.

The old apple tree may be very picturesque and make a charming picture in combination with a cottage of New England design, say in Connecticut, but bring the same combination to tidewater Maryland, and the old apple tree becomes an abomination near the house on account of insect pests and disease during the long summers. The apple belongs to a northern latitude, but if that particular effect is desired, substitute the dogwood, Japanese varnish tree or any other picturesque tree that will give the same proportions.



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**KENTUCKY BIDS.**

Sealed bids will be received by the Kentucky department of highways, Frankfort, until 10 a.m., April 19, for roadside improvement on the Versailles-Lexington road from the Woodford county line to the corporate limit of Lexington, slightly over seven miles, for which will be required 900 honeysuckles, 699 miscellaneous trees and shrubs, 44,245 square yards of bluegrass sod, 7,483 pounds of grass seed and 25,827 pounds of 6-8-6 fertilizer, and also for roadside improvement on the Louisville-Shelbyville road from near Middletown to the Shelby county line, almost eight miles, requiring 200 honeysuckles, 18,229 square yards of bluegrass sod, 5,082 pounds of grass seed and 23,106 pounds of 6-8-6 fertilizer.

At the same time bids will be open for grading the Hartford-Beaver Dam road, calling for 1,276 pounds of grass seed and 23,926 pounds of 6-8-6 fertilizer, and for seeding the Bowling Green-Scottsville road from near Greenwood to Alvaton, requiring 304 pounds of rye grass seed and 5,700 pounds of 6-8-6 fertilizer.

**NEVADA BIDS.**

The department of highways of the state of Nevada invites proposals for furnishing nursery stock as early as possible this spring, the items being 135 Populus Fremontii, seven to ten feet; eight Gleditsia triacanthos, eight to ten feet, and forty-four Tamarix hispida, two to three feet. Bids will be opened at 1:30 p. m., April 17, at Carson City, though delivery is to be at Fallon.

**RED CEDAR IN FLORIDA.**

Young red cedar trees are available for reforestation this year for the first time in Florida. The Florida forest and park service has secured 2,000 seedling cedars from Tennessee for distribution at cost to Florida landowners who care to experiment with the species. The trees will be sold at \$2.65 per thousand picked up or \$3.35 delivered.

C. H. Coulter, assistant state forester, states that red cedar is not new to the state, having at one time been an important lumber species particularly along the gulf coast section. It is still commonly seen as an ornamental there.

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**BARBERRY THUNDERBOLT,** 2 and 3-yr. trans., heavy, principally 12 to 15 ins. and 15 to 18 ins., also 3-yr. seedlings

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**Abelia Edward Goucher,** new lilac-pink. Many other fine unusual plants. Send for trade list.

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# Diseases of Trees

*Wilt Attacking Mimosa Tree, Widely Planted in Several Southeastern States—by Dr. Leo R. Tebon*

A disease of the mimosa tree, termed a "vascular wilt" in the report of Dr. George H. Hepting, associate pathologist of the federal division of forest pathology, has become prevalent in numerous localities in three of the southeastern states where the mimosa tree is widely planted.

The mimosa tree, as it generally is called in southern states, is the silk tree or silky acacia known botanically as *Albizia Julibrissin*. It is a member of the legume family native from Persia to central China and was introduced into America about 1745. Having the capacity to grow rapidly in unfavorable soils and being of pleasing appearance because of its large fernlike leaves and striking colored flowers, it has been popular as an ornamental and in recent years has been commonly used for planting along roadsides.

The disease now attacking the mimosa tree shows first as a wilting of the leaves on only some of the branches. When wilted, these leaves hang downward; then they dry and shrivel and soon afterward fall. Within a year from the time wilting of the leaves first shows, defoliation is as a rule complete, and death of the tree follows its defoliation. But in some of the cases observed, trees up to twenty feet tall wilted completely within a month after the first wilting was seen.

Internally the disease makes itself evident, as do most vascular diseases of trees, by a discolored ring in the wood. The ring is brown, always in the sapwood and usually in the annual ring of the current year. Discoloration is heaviest in the roots and becomes less intense as it is followed upward in the trunk and outward into the branches. It often is not evident in the smaller branches until the disease has progressed into its later stages.

A disease of the mimosa tree identical as to symptoms and similar in epidemic destructiveness was reported in southern Russia in 1920, and it is supposed that the American and Russian mimosa diseases may be the same. The American investigation has, how-

ever, brought to light as a cause of the disease a fungus different from that to which the disease was attributed by the Russian investigator. Although both fungi are of the kind known as fusarium, Dr. Hepting has proved experimentally that one he obtained from diseased trees in America is capable of causing their death and, believing that his fungus has hitherto been unknown to science, he has named it as a new species, *Fusarium perniciosum*. In classification, it shows definite relationship to the large group of fusaria already known to cause severe diseases of plants.

The mimosa tree wilt was first observed by scientists in 1935 at Tryon, N. C., but residents of the town report that it had been present there since about 1930. Between this last year and 1939 some 580 mimosa trees have been killed by it in this one town. In the survey made to determine its occurrence, the disease has also been found in three towns in Virginia, seventeen other towns in North Carolina, thirteen towns in South Carolina and two towns in Georgia. In none of these places, except at Tryon, is there evidence that the disease was present prior to 1934.

Since the fusarium fungus that causes the disease attacks the tree by way of the water-conducting vessels, in which it lives and spreads, there is, of course, no cure for a diseased tree. To prevent the spread of the disease from place to place, it is suggested

that soil, whether or not it is attached to the roots of plants, should not be moved from areas known to be infected. Also, planting stock should be selected only from areas that are known definitely not to harbor the disease.

Although it would appear that infection usually enters a tree from the soil by way of the roots, it has not yet been established that infection cannot enter through trunk and branch wounds. Consequently, in the care of established trees well advised precautions to prevent infection should be taken at the time trees are pruned. This naturally would include careful disinfection of tools, disinfection of wounds and the protection of all wounds by a serviceable wound paint.

(Nurserymen in the region where the mimosa tree is grown can secure the complete report on the mimosa tree wilt from the Superintendent of Documents, Washington, D. C., for 5 cents. It is published as United States Department of Agriculture circular No. 535.)

## PLANE-TREE DISEASE.

Most recent report on the plane-tree disease, by J. M. Walter and P. V. Mook, of the Dutch elm disease laboratory, at Morristown, N. J., states that in addition to being prevalent in Philadelphia and Baltimore, the disease has been found in Newark, N. J.; South Charleston, W. Va.; Magnolia, N. C., and Williamsburg, Va.

In most instances it is the plane-tree, *Platanus acerifolia*, that has been attacked. Trees affected by the disease at Vicksburg, Miss.; South Charleston, W. Va., and Williams-

## ETHICS IN THE NURSERY BUSINESS

The reaction contained in several letters I have received in regard to my first article has been very interesting. Years ago I considered the nursery business a very commendable and dignified profession. Don't know if anyone else did or not.

Send your comments direct to the paper in which I publish these articles. They should print 'em. Everyone should be entitled to voice an opinion. I can stand back of anything I have or will write.

In July there will be a gathering of nurserymen at the Hotel New Yorker in New York City. Perhaps at that time, we can do something. I understand all nurserymen and allied trades and professions are welcomed. Attend the meetings. If you cannot do that, write in. The A. A. N. is desirous of increasing its membership.

Following is taken from an article in *Florists' Exchange* on a meeting of Maryland nursery school, or what have you, entitled "Survey of conditions that hurt business":—"Poor stock and selection of plants, cutting down an 8-10' to fill an order for 4-5'. Injured roots and branches (sending the tops and leaving the roots at the nursery). The average complaint was not 'the price was too high.' If we could depend on getting good material at a fair price, there would be few, if any, complaints."

ARTHUR DUMMETT.

**SHADE TREES**

Ash, American	Per 10	Per 100
10 to 12 ft.	\$10.00	\$ 90.00
2 to 2 1/2 in. cal.	15.00	140.00
2 1/2 to 3 in. cal.	30.00	185.00
Elm, American		
10 to 12 ft.	6.50	60.00
2 to 2 1/2 in. cal.	12.50	115.00
2 1/2 to 3 in. cal.	26.00	175.00
Elm, Chinese, 5 to 10 ft.	10.00	90.00
Flowering Crabs, Assorted	Varieties	
3 to 4 ft.	4.50	40.00
4 to 6 ft.	6.00	50.00
Koelreuteria, 6 to 8 ft.	12.50	
Maple, Norway		
2 to 2 1/2 in. cal.	17.50	165.00
2 1/2 to 3 in. cal.	22.50	215.00
3 to 4 in. cal.	35.00	300.00
Mimosa, 6 to 8 ft.	10.00	90.00
Oak, Pin		
1 1/2 to 2 in. cal.	16.50	
2 to 2 1/2 in. cal.	20.00	
2 1/2 to 3 in. cal.	32.50	
Poplar, Lombardy		
5 to 6 ft.	1.80	18.00
6 to 8 ft.	2.00	18.00
8 to 10 ft.	3.00	22.50
10 to 12 ft.	4.50	35.00
Specimen Apple Trees,		
4-yr., 7 to 8 ft.	12.50	
Walnut, Black, 6 to 8 ft.	7.50	65.00
Willow, Weeping		
6 to 8 ft.	6.00	50.00
8 to 10 ft.	7.50	

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SEEDLINGS (1-yr.)	Per 1000	Per 10,000
9 to 12 ins.	\$5.00	\$70.00
6 to 9 ins.	7.00	50.00
3 to 6 ins.	5.00	35.00

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burg, Va., are, however, the American sycamore, *Platanus occidentalis*.

The plane-tree disease, seriously regarded because of the destruction it is known to have caused in two large cities and because the fungus which causes it is closely related to the Dutch elm disease fungus, produces infections high in the crown of the tree as well as in the trunk. Where bark has recently exfoliated, the presence of infection is denoted by an area of dark brown or black discoloration which usually is elongated in the direction of the grain of the underlying wood. Where old bark layers and scales still cling, infection is marked by elongated depressions, beneath which the bark is darkened.

Of some forty-five branch infections that have been studied, twenty-six have been associated with small pruning cuts, and the plane-tree disease has been transmitted experimentally to healthy trees by the use of infected pruning saws.

## GLOUCESTER CONTRACT.

The municipal council of Gloucester, Mass., recently voted to employ Corliss Bros., Inc., of that city, to draw up the plans and supervise their execution in laying out the extensive grounds surrounding the new million-dollar Gloucester high school.

In this layout adequate provisions will be made for all types of sports, military tactics, a campus and parking facilities. There is a large outcrop of ledge on the westerly side of the structure, which gently slopes away to the banks of the Annisquam river. This ledge will be treated with a naturalistic planting that can be used as an educational subject by botany classes, as well as for beautification. The work will extend over a period of several seasons.

## TREES' LOSS OF WATER.

An adequate supply of soil moisture is essential for long-lived trees. It is said that the average-sized deciduous tree gives off eighty gallons a day and that a white oak may require as much as 150 gallons on a summer day. A birch with 200,000 leaves may lose 110 gallons in a day, and a beech, presumably a relatively small one, twenty-one gallons. It has been estimated that an acre of pine forest may evaporate a ton of water a day.

Pin Oaks — all sizes  
*Lonicera Fragrantissima*  
Large Hemlock

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*Buddleia Charming* (Pink), 2-in. pots, \$10.00 per 100, \$80.00 per 1000.

*Buddleia Dubonnet* (Wine-colored), 2-in. pots, \$18.00 per 100, \$150.00 per 1000.

*Buddleia Orchid Beauty* (Cattleayalliac), 2-in. pots, \$6.50 per doz.; \$50.00 per 100.

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For New England and White Mountain  
Evergreens, Trees, Shrubs,  
Bulbs, Ferns and Wild Flowers  
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Exeter, N. H.

## NORTHERN COLLECTED EVERGREENS

Hardy, well rooted. *Abies balsamea*,  
*Thuja occidentalis*, *Tsuga canadensis*.

Prices per 1000. Cash.  
3 to 6 ins. \$5.00 9 to 12 ins. \$12.00  
6 to 9 ins. 9.00 12 to 18 ins. 20.00

Ferns, plants and native orchids.  
**WILLIAM CROSBY HORSFORD, Charlotte, Vt.**



# Fruit Tree Stocks

*Long-standing Problem Aggravated by War Conditions  
Affecting Current Seed Supplies — By Brooks D. Drain*

Fruit root stocks present an old problem, which has been studied and discussed for more than a century, and still it engages the attention of nurserymen, fruit growers and research workers in horticulture. Wars in both Europe and the orient add to root stock difficulties at the present time and certain kinds may be almost unobtainable in the near future. This is the immediate problem facing nurserymen.

## Pear Root Stock.

*Pyrus calleryana* has been a favorite pear stock for southeastern United States for a number of years. The seeds, if properly handled, germinate well and the seedlings grow rapidly. The bark works easily in budding and makes an excellent union with most pear varieties. Most of our *P. calleryana* seeds come from the orient and are expensive and hard to obtain at the present time. In addition, this stock is not winter hardy in the coldest parts of this continent. Our trials at the Tennessee experiment station indicate that local production of this seed is likely to be profitable and would make us independent of the orient. A *P. calleryana* tree in the station's planting that was twenty-five feet tall and thirty feet in diameter produced two bushels of fruit in the rough, which separated out two and one-half pounds of clean seeds. The production of this seed costs little up to harvest time, as the trees are free from diseases and insects. You should choose a location having air drainage, as *P. calleryana* blooms somewhat early in the spring.

## Peach Root Stock.

I have listened to nurserymen complain of the scarcity of seedling peach pits for at least fifteen years, but we have done little about it. The state of Tennessee still produces a few of these seedling pits, but most of our supply comes from peach canning factories and are produced by cultivated varieties. Pits from cultivated varieties germinate poorly, vary greatly in size and produce a variable lot of seedlings unless the

weaker ones are rogued out. We have had good success growing a selected strain of seedling peach pits at the experiment station, using fairly close plantings and managing them with a minimum of expense. One or two nurserymen are attempting to grow their supply of seedling pits, using this strain, which comes fairly true from seed. Trial plantings have been made in other states, and Tennessee should not let this pit production go elsewhere.

## Apple Root Stock.

The so-called French crab or French wild apple seedling is still the leading apple stock of much of the United States, but its failings are many. The roots are not winter hardy in the middle-northern section from Iowa to Wisconsin. Either or both kinds of root rot take a heavy toll in the apple orchards of Tennessee and surrounding areas. You who grow apple trees in your nursery know the heavy losses from woolly aphis and hairy root. Perhaps their injury continues in the orchard after the trees have been set out. Fruit growers complain that apple trees on French crab roots vary greatly. The Iowa station claims that thirty per cent of our apple trees produce sixty per cent of the crop. Since the remaining seventy per cent of the trees produce only forty per cent of the crop, they are probably grown at a loss. The high variation in our apple orchards usually has been attributed to the French

crab stock, but may be partly due to soil variation, mutation strains and other causes. The present war in Europe is likely to make French crab seed expensive and to limit supply.

Station workers in horticulture faced with so many problems in apple root stocks turned to vegetatively propagated varieties and strains. Apple root stocks grown from cuttings are interesting in an experimental way and may in time solve some of these problems. T. J. Maney, of the Iowa station, writing in 1937, summarized some of their experiments as follows:

"Throughout all the years that top-working has been actively practiced by fruit growers of the northern states, Hibernial and Virginia crab are the stocks which have been used most extensively. The popularity of these varieties is due to their hardiness, deep-rooting habit, disease resistance, congeniality to a wide range of varieties and the wide-angle crotch structure of the scaffold branches where they join the main trunk. On account of these qualities the writer is of the opinion that even under the extreme climatic conditions of the great plains states the use of these stocks may add from ten to fifteen years to the life of top-worked varieties."

However, Hibernial and Virginia crab seeds germinate poorly, and the resulting seedlings are of poor quality. Vegetatively propagated root stock of Virginia crab appeared promising at several stations, but nursery trees grown on such stock are expensive. In addition, the Virginia crab is more or less dwarfing for Stayman, Mammoth Black Twig and Winesap.

Some nurserymen have secured, or

## SPRING BARGAINS IN LINERS

Surplus Sale of Evergreen Seedlings  
TWO-YEAR SEEDLINGS

Variety	Grade	Per 100	Per 1000	Per 10,000
Norway Spruce, 3 to 3 ins.	.....	\$1.50	\$ 3.00	\$ 27.50
Norway Spruce, 3 to 6 ins.	.....	2.00	6.00	50.00
White Spruce, 2 to 4 ins.	.....	2.00	9.00	75.00
Blue Spruce, 2 to 4 ins.	.....	2.50	15.00	140.00
Douglas Fir, 2 to 4 ins.	.....	2.00	12.00	100.00
Douglas Fir, 4 to 6 ins.	.....	2.50	18.00	125.00
Scotch Pine, 3 to 6 ins.	.....	2.00	8.00	75.00
Jack Pine, 4 to 8 ins.	.....	2.00	6.00	50.00
Ponderosa Pine, 3 to 6 ins.	.....	2.00	10.00	80.00
Ponderosa Pine, 2 to 3 ins.	.....	1.50	7.00	.....
Muske Pine, 2 to 4 ins.	.....	2.00	25.00	.....
Red Pine, 3 to 6 ins.	.....	2.00	6.00	50.00
Biota Orientalis, 3 to 6 ins.	.....	1.00	7.00	60.00

### LINING-OUT SHRUBS AND TREES

	Per 100	Per 1000
3,000 Regel Privet (true), 8 to 15 ins.	\$2.50	\$20.00
500 Dentata Gracilis, 6 to 12 ins.	4.00	30.00
1,500 Snowballs, 1-yr. layers	3.00	40.00
5,000 Buckthorn, 2-yr., 6 to 9 ins.	1.00	6.00
10,000 Red Oak, 6 to 9 ins.	1.00	7.00
5,000 Red Oak, 3 to 6 ins.	.75	4.00
500 Forsythia Intermedia, 6 to 15 ins.	3.00	20.00

All prices above, cash with order. If usual dating is desired, add 10% and send references if unknown. Samples if desired. 5000 at 10,000 price.

**THE SCOTCH GROVE NURSERY, Scotch Grove, Iowa**

## TAXUS CUSPIDATA

### Spreading Yew

Improved dark green strain. Best Evergreens for sun or shade, foundation plantings and hedges.

2 to 8 feet

Send for special list.

## BOXWOODS

Hardy Type Bushy Plants

15 to 18 inches.....	\$1.00
18 to 24 inches.....	1.50
2 to 2½ feet.....	2.00

**THE W. A. NATORP CO.**  
Cincinnati, Ohio

## JUNIPERUS PFITZERIANA

Per 10 Per 100

15 to 18 ins., xxx, B&B	\$12.50	\$100.00
18 to 24 ins., xxx, B&B	20.00	175.00

## HOLTON & HUNKEL CO.

P.O. Box 1747, Milwaukee, Wis.  
Nursery at Brown Deer, Wis.

## Sturdy Northern-grown Evergreens

	Per 1000
Austrian Pine, 6 to 8-in. sdgs....	\$15.00
Norway Pine, 6 to 8-in. sdgs....	15.00
Ponderosa Pine, 6 to 8-in. sdgs....	15.00
Scotch Pine, 8 to 12-in. sdgs....	15.00
White Pine, 4 to 6-in. sdgs....	16.00
Black Hills Spruce, 2 to 4-in. sdgs.	20.00
Colorado Spruce, 4 to 6-in. sdgs..	20.00
Norway Spruce, 6 to 8-in. sdgs....	15.00

## FERNDAL NURSERY

Askov, Minn.

## HILL'S EVERGREENS

Complete assortment of lining-out sizes  
Also larger grades for landscaping  
Send for our wholesale catalogue

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Fruits and Shrubs

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Daytons Bluff Sta. St. Paul, Minn.



## EVERGREENS

For Seventy-six Years  
Growers of Quality Evergreens  
Lining-out Stock a Specialty

Write for Trade List

**EVERGREEN NURSERY CO.**  
Established 1884 • STURGEON BAY, WIS.

are planning to secure apple seeds from cider mills to use during the present shortage of French crab seeds. The Iowa station considers seeds of Grimes, Stayman and Jonathan undesirable for this purpose. It lists Wealthy, Whitney, Oldenburg, Delicious, Northern Spy, Windsor and Allen Choice as more desirable.

### Cherry Root Stock.

The discussion of Mazzard versus Mahaleb root stocks for cherries has been carried on for over 100 years and, so far as the speaker can tell, is no nearer being settled now that it was then. A planting of Coe Transparent and Montmorency on Mazzard and Mahaleb stocks was made at the Tennessee station in 1930. Trees were graded for uniformity and plots were replicated to avoid variations between plots. Our records over the past ten years indicate little difference between the different plots in either health or growth. Bird damage has made the yield records of little value. The trees in this test were set at various depths—bud union well above the ground, two inches below the surface and four inches below the surface of the ground. By 1934 own-rooting (roots of the scion variety developed above the bud union) was common on certain plots. In a plot of Coe Transparent on Mahaleb roots with trees set with the bud union two inches below the surface eighty per cent of the trees own-rooted in 1937. A plot of Montmorency on Mazzard stock with trees set the same depth showed no own-rooting at the above date. We used a chemical test in identifying these roots. Other plots varied between these extremes.

In addition to this experiment, I have personally inspected thousands of cherry trees in a large number of orchards in Michigan. The root stock in each case was readily identified from suckers. Excellent orchards were on both kinds of root stocks.

I wish to urge local production of fruit root stocks, rather than to depend on foreign countries. Our experience with Virginia-grown Mazzard seeds indicates that they are often better than those imported. In addition locally grown seeds of most fruit root stocks, properly handled, give a high germination and grow rapidly.

## THE PAUL OFFENBERG NURSERY COMPANY

1988 East Livingston Ave.  
COLUMBUS, OHIO

Lowest Prices

Highest Quality

## EVERGREENS

for Lining out

Grafted plants

50,000 out 2½-in. pots

Grafted plants, 1-yr. field

Cuttings, rooted, out of the bench

Cuttings, Bare roots, 1-yr. field

We don't graft on collected understock, but on replanted seedlings only, which cuts down your losses.

Ask for Special list

## SEEDLINGS

**Juniperus Virginiana**

(Northern Wisconsin Type)

	Per 100	Per 1000
6 to 9 ins. ....	\$3.00	\$25.00
9 to 12 ins. ....	4.00	35.00

## UECKE

EVERGREEN NURSERY

NEW LONDON, WIS.

## COLORADO BLUE SPRUCE

2-year seedlings

	Per 100	Per 1000
(2-0) 0 to 2 ins. ....	\$1.50	\$7.00

F.o.b. Fennville

Seedlings grown from seeds from cones hand picked from blue trees in Colorado.

Michigan-grown seedlings.

**WALTER A. STUDLEY, NURSERY**

Dept. AN

Fennville, Mich.



Wholesale growers of the best

Ornamental Evergreens,  
Deciduous Trees,  
Shrubs and Roses.

Write for our current trade list.

**THE KALLAY BROTHERS CO.**  
Painesville, Ohio

## JUNIPERUS PFITZERIANA

Strong rooted tip cuttings, 4 to 6 ins. \$3.50 per 100, \$30.00 per 1000.

**J. B. BEALLE**

Greenwood, Miss.

## At Spring Shows

*Exhibits Staged by Nurserymen at Flower Shows  
in Central West and at California Orange Show*

The spring flower and garden shows held in the middle west attracted relatively fewer nurserymen's exhibits than did the eastern exhibitions, of which some account appeared in the April 1 issue. Those who contemplate participation another year will find suggestions in the following notes on pertinent exhibits.

### At Detroit.

Several local nursery firms were represented by displays in the seventeenth annual garden show at Detroit, Mich., March 23 to 31.

An automobile firm, the Chrysler Corp., held the limelight with a large garden as the background for a display of automobiles. There were about 470 rhododendron plants in full bloom and azaleas of many varieties against a background of other shrubbery and trees. Three pools covered 6,000 square feet. In the largest of these floated black and white swans and flamingos. Dozens of ducks swam in the other two, and peacocks strutted around. Bent grass was used for the sod and many large fruit trees were in full flower.

The Hav' Alook Gardens, Fowler-ville, used pines native to Michigan. Artistic beds of bleeding hearts and grape hyacinths bordered the trees.

A small Cape Cod cottage formed the background for the garden of the Monroe Nursery, Monroe. Beds of tulips were planted around the house and bordered the picket fence.

William Baxter constructed one of his fantastic gardens called "Deep Purple." A small stream with purple water flowed through a garden of cinerarias shaded from lavender to deep purple. Pine and birch trees were used as a background.

In the center of the garden displayed by the Pontiac Nursery Co., Romeo, was a wishing well surrounded by hyacinths, tulips, poeticus narcissi and daffodils in formal beds. A thatched garden house was between forsythias and other shrubs in bloom.

The exhibit by the Greening Nursery Co., Monroe—"Fall Scene in Northern Michigan"—was an attraction to outdoor fans. Wild life and snow made the garden lifelike. A beautiful fall in the background formed a stream which flowed through

evergreens and native Michigan plants.

Colorful plants and shrubs against a formal rock garden and trees were displayed by Martin Loeffler.

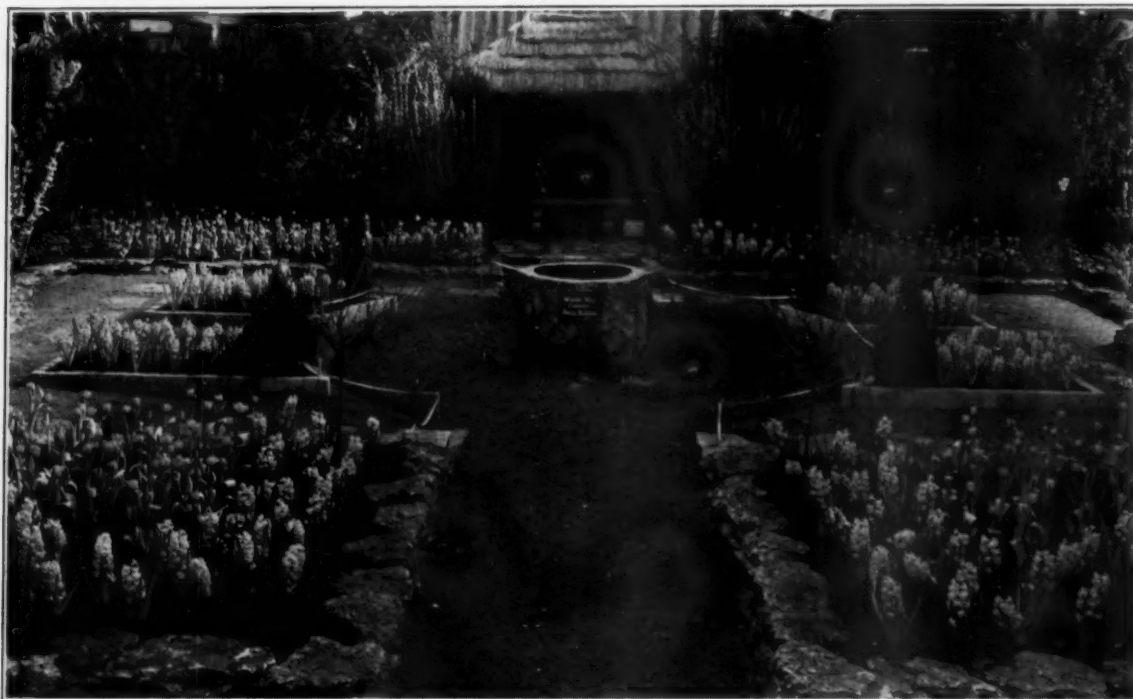
### At Chicago.

The entrance planting of the fourteenth annual flower show sponsored by the Garden Club of Illinois, Inc., in cooperation with the Allied Florists' Association of Illinois, at Navy Pier, Chicago, March 30 to April 7, was a southern garden by the Chicago park district, containing masses of azaleas, groups of rhododendrons, flowering dogwood and magnolias. Weeping birch and mountain laurel gave substantial substance and background, while overhead Spanish moss hung from trees.

The Lake Forest Garden Club won a highest award for a restoration of a garden at Williamsburg, Va., which featured a variety of shrubs and topiary swans.

The forest preserve district of Cook county won an award with its woodland scene, with spring flowers pushing through the dead leaves. The American Gardeners' Association display was composed of bulbous flowers and hydrangeas, while the National Association of Gardeners had a lavish display of polyantha roses.

The display set up by the Morton



Wishing Well in Center of Garden Staged by Pontiac Nurseries at Michigan Flower Show, Detroit.



## PHLOX

### WE ARE NOW SHIPPING LINING-OUT PHLOX

Good, thrifty young plants, freshly dug. We have a good list of varieties. Now is the time to get your order in and be sure to get your choice stock from phlox specialists.

Also we have field-grown phlox. Write for our complete list.

**SHERMAN NURSERY COMPANY**

Charles City, Iowa.

## BUTTERFLY BUSH

*Buddleia Ile de France*, long spikes, wine colored; favorite for summer cut flowers outdoors. Field-grown, sturdy plants.

	Per 100
350 2 to 3 ft., 10 per bundle.....	\$20.00
450 18 to 24 ins., 10 per bundle.....	15.00
600 12 to 18 ins., 20 per bundle.....	10.00

*Buddleia Alternifolia*, lavender, globe-shaped flowers in each leaf joint; spring blooming; hardy. Field-grown, sturdy plants.

	Per 100
600 2 to 3 ft., 10 per bundle.....	\$15.00
900 18 to 24 ins., 10 per bundle.....	10.00
Lining-out size.....	7.00

**VERHALEN NURSERY CO.**

Scottsville, Tex.

## LILACS

Charles X, on own roots, 15 to 20 inches high, 1 to 3 canes. Once transplanted. \$15.00 per 100. 25 at 100 rate. 30 acres of Peonies.

**KLEHM'S PEONY FARMS**  
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## CAMPANULA SUMMER SKIES

First perennial cup-and-saucer Canterbury Bell. White, suffused lavender.

Heavy field-grown plants, \$2.30 per 10, \$18.00 per 100. Cash with order.

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## HARDY PHLOX

Rooted cuttings for lining out. Send for prices on a selected list of varieties, including some outstanding new ones.

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## QUALITY PERENNIAL PLANTS

Specialties

*Gypsophila Bristol Fairy* and *Dicentra Spectabilis*.

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Alva H. Smith R.F.D. 2

## SPECIAL . . . . . SPECIAL

BIG FIELD CLUMPS—STRONG, CLEAN.  
PINK CUSHION, \$5.00 per 100  
RED, WHITE, BRONZE, \$6.00 per 100  
NEW YELLOW CUSHION, \$7.00 per 100  
Minimum order 25 of a kind.

CATALOGUE.

**WONDERLAND NURSERIES**  
ELLERSON, VA.

## HERBS

Pot-grown plants; over a hundred varieties. Dried Herbs for Flavoring and Fragrance. Other plants of unusual character and with the charm of old-time gardens.

New Catalogue sent on receipt of 10 cents.

**WEATHERED OAK HERB FARM, INC.**  
Bradley Hills, Bethesda, Maryland

Arboretum, Lisle, Ill., was a convincing reproduction of a farm scene featuring a grove of Norway pines planned for a windbreak.

## CALIFORNIA SHOW.

### Nurserymen's Displays.

The thirtieth national orange show, held at San Bernardino, Cal., March 14 to 24, gave nurserymen a chance to demonstrate with their exhibits what an important place their service can hold in the building of the American home.

Two years ago a plan for the landscaping of the grounds was adopted, with the first phase practically completed for this year's show. East of the main building a large parking lot was planted to flowering and shade trees. A 7-acre picnic area, designed around a lagoon, is nearly finished. Plantings in front and to the side of the main building were in full bloom for the opening.

Commercial nurserymen's and florists' exhibits were divided into three divisions. The first award for the most complete and artistic display of potted plants, ornamental shrubs and cut flowers, with cut flowers or potted plants to approximate seventy-five per cent, went to Armstrong Nurseries, Inc., Ontario, with a lovely garden having a winding path ending at a mirror which reflected the setting and gave depth and an interesting vista. Camellias, rhododendrons, azaleas and bulbous plants were banked low under California live oaks and *Pinus halepensis*.

Second award went to Kramer Bros., Upland. Their display used the front section of a simple white frame house, trimmed in green, with variegated ivy over a doorway trellis. Camellia bushes in bloom, azaleas and holly completed the major plantings. The caption for this exhibit was, "The garden makes the home—the home makes America."

Germans' Seed & Plant Co., Los Angeles, won third award with another home setting, this time a thatched cottage of English style, with a charming garden in full bloom surrounding it. Darwin tulips in profusion, pink and white azaleas, callas, cyclamens and white birch trees, with a background of evergreens, made up the colorful display.

City Nurseries of Redlands, Inc., Redlands, took fourth place with an

## LINING-OUT STOCK

	Per 100
Flowering Crabs—fine bench grafts ready to plant in the field.....	\$5.00
Beech's, fragrant double pink.	
Eley's, semi-double red.	
Niedzwetzkyana, deep rose red.	
Floribunda, single rose carmine.	
Scheldecker's, early pink.	
French Lilac Grafts.....	5.00
Chas. X, single violet red.	
Ludwig Spaeth, a. deep purple.	
Red Fernian, fine red parents.	
Aronia, red-fruited, 12 to 18 ins....	2.00
Barberry, Jap green, 9 to 12 ins....	1.35
Barberry, Jap red leaf, 6 to 9 ins....	2.60
Boston Ivy, fine seedlings.....	2.50
Calycanthus, 12 to 18 ins., nice....	2.25
Cornus Lutea, yel. br., 9 to 12 ins....	3.00
Crataegus Oxyacantha, 12 to 18 ins....	4.00
Cydonia, Jap. fl. quince, 12 to 18 ins....	2.25
Hydrangea F. G., 9 to 12 ins., nice....	3.25
Hydrangea Snowball, 2-yr., 9 to 12 ins....	3.00
Hall's Jap Honeysuckle Vine, nice....	1.50
Ibota Privet, 12 to 18 ins., fine edging....	2.50
Snowberry, white, 6 to 12 ins....	2.50
Spiraea Thunbergii, fine plants....	3.00
Spiraea Vanhouttei, 12 to 18 ins., nice....	2.00
Birch trees, Eu. White, 2 to 3 ft....	4.00
Eu. Mountain Ash, 2 to 3 ft., fine....	4.00
Chinese Elm, 2 to 3 ft., fine....	2.00

### BUDDLEIA DUBONNET

Fine new variety of rich wine-red. Blooms a foot long. Well filled and unexcelled for cutting. We offer fine 2 1/2-in. pot plants.

\$1.50 per 10, \$12.00 per 100  
25 or more at the 100 rate.

**THE HARMON NURSERY** Prospect, Ohio

## SHRUBS

### Shade and Ornamental Trees Grapevines and Blackberries

Special Prices on  
Peach and Barberry

Write for Price List and mail us your  
WANT LISTS

**WILLOWBEND NURSERY**  
(E. M. Brewster's Sons)  
Perry, Ohio

## VIBURNUM CARLESII

(Pink Korean Snowball)

8dgl. - Tpl. from 2 1/4-in. pots  
\$15.00 per 100, \$125.00 per 1000  
May 1 delivery

These are true Carlesii grown one year in outside seedbed and potted over winter in greenhouse.

Carlesii from seed are preferable to budded or grafted stock as they do not sucker.

Send for complete trade list.

**W. N. SCARFF'S SONS - New Carlisle, O.**

## BARBERRY SEEDLINGS

Both Red and Green  
Cheaper than ever before.

2-yr. Red Oak Seedlings  
**COOK'S NURSERIES** Geneva, O.

## Ampelopsis Veitchii (Boston Ivy)

2-yr. transplanted	Per 100
2 to 3 ft. ....	\$12.00
18 to 24 ins. ....	10.00
12 to 18 ins. ....	8.00

**H. A. MEHAFFEY**

Route 1 Painesville, O.

## LINING-OUT STOCK

Send for List

**Willis Nursery Company**  
Ottawa, Kansas

Easter theme, "Resurrection of American ideals is the hope of America." Dark blue shredded cellophane covered the ground and tiny yellow chicks were placed between garden plantings. A huge arrangement of Easter lilies centered the display. Around the lilies were many miscellaneous flowering plants.

#### Outdoor Living Rooms.

In the second class for exhibits, combining utility and novelty in an outdoor living room garden or landscape unit, using ornamental shrubs and flowering plants for effect, first award went to the Milliken Nurseries, Claremont. The motif was "Peaceful America." A sunken circular patio, centered by a lighted fireplace with a lattice background, was a charming spot. A solid planting encircled the brick patio, for which azaleas, cyclamens and primulas were used in profusion. Tall birch trees placed at the sides gave balance.

Second award went to the Twin Cypress Nurseries, San Bernardino, for a "By a waterfall" garden. White birch trees, evergreens, ferns and pitosporum massed together gave a setting for a pool and stream, which ran through the display, bordered by ferns, daffodils, azaleas and rhododendrons.

Frank Hunt, San Bernardino, took third honors with an all-white outdoor living room. A white wooden pergola, indirectly lighted, with white iron and glass garden furniture, was the living room, while the circular layout banked outside with low plantings, all with white blooms, was a charming garden. Inside the low encircling wall were white azaleas with dwarf myrtus. In the center was a circular pool, with sunken pots of caladiums raised just out of the water so that the plants appeared to be growing there.

#### Unusual Plants Shown.

Del Amo Nurseries, Compton, had an extensive garden design, with a pathway leading through a garden spot containing a variety of the more unusual plants. For a background, cajuput trees, white birch and evergreens were used in combination with photinias, *Diosma Reevesii*, azaleas, heather, *Juniperus conferta* and *Sabina*, and *clivias* in bloom.

Anthony Bros. Stone Co., Santa Ana, constructed a flagstone-floored

living room and dining room. Plantings included *strelitzia*, *diosma*, *azalea* and *arbutus*, all placed to enhance the architectural design.

The city of San Bernardino park and electric department constructed a natural rocky glen, with a waterfall over a rocky, fern-covered hillside. This was beautifully lighted and made a striking frame for the entire side of the space devoted to flower and nursery exhibits.

#### NORTHERN CALIFORNIA ASSOCIATION FORMED.

A local chapter of the California State Association of Nurserymen was formed April 3, at Sacramento, at a meeting held at Hart's restaurant. The local chapter will be known as the Superior California Nurserymen's Association, with membership from the northern counties of the state.

Louis B. Lagomarsino, Sacramento, was elected president of the organization. Other officers elected were: R. S. Stuart, French Camp, vice-president; C. G. Armstrong, Sacramento, secretary-treasurer; J. F. Wittsche, Sacramento, director.

"The purpose for organizing this group," said Mr. Lagomarsino, "is to create within the nurserymen's profession in the northern California counties a central group, working in harmony with the parent association, for the advancement of the industry as a whole and the cooperative consideration of legislative, industrial and relative matters."

The meeting was called by Frank Tuttle, Jr., San Jose, president of the California state association. In attendance and forming the new organization were Donald Gray, Elverta; A. J. Weaver, Roseville; Joseph and

U. J. Cecchetti, Sacramento; Gene Fowler, Newcastle; L. H. Miller, North Sacramento; R. S. Stuart, French Camp; Kent Nursery, Live Oak; Clarence D. Vaughn, Woodland; I. D. Hicok, Sacramento; C. G. Armstrong, Sacramento; G. S. Wallace, San Jose, secretary-treasurer of the California state association; Peter J. Lagomarsino, Ed Martin, Earl C. Lagomarsino, J. F. Wittsche and Louis B. Lagomarsino, all of Sacramento, and Frank C. Raffel, Stockton.

The second meeting of the new organization will be held at Sacramento, May 1.

#### SANTA ANA GARDEN.

Rancho Santa Ana botanic garden, Santa Ana, Cal., is open to visitors each Friday through April, May and June. Warm winter weather has made it hard to anticipate the blooming of the many native plants studied there for their horticultural features. In the six years since its inception, the garden foundation has gathered more than one-half of the trees and shrubs of California, as well as many of the finest perennials and annuals. In the administration building are an herbarium with 22,000 plant specimens, a library of 2,000 botanical books and a propagating nursery.

#### CARLOAD LOTS

ELM, American, Moline and Vase, up to 4 ins. All transplants.

MAPLE, Norway, up to 3 1/2 ins. Transplants, extra select, spaced 7x7 ft.

POPLAR, Lombardy, up to 2 ins.

WILLOWS, Thurlow, up to 3 ins.

BARBERRY, Thunbergii, up to 2 to 3 ft.

SPIRÆA, Vanhouttei, up to 5 to 6 ft.

APPLE, 2-year.

CHERRY, 1-year.

PEACH.

All of above items can be supplied in carload lots.

Send for list on many other items.

**C. M. HOBBS & SONS, INC.**  
Bridgeport, Indiana

Largest Nursery in Indiana. Est. 1875

Field-Grown  
Rosebushes  
**HOWARD ROSE CO.**  
Hemet, California



*All kinds of*  
**Ornamental and Flowering Shrubs,  
Roses, Fruit Trees and Small Fruits**  
ALL EXTRA GOOD DORMANT  
STOCK

A Splendid Assortment of Nursery  
Stock in General

Write for Bulletin No. 3 for latest  
Grade Counts

**LAKE'S  
Shenandoah Nurseries**

Shenandoah, Iowa  
Branch Warehouse  
3324 W. Cermak Road  
Chicago, Illinois

"We are prepared to fill  
your orders promptly."



Shipping costs prepaid on lining-out stock to any point in the United States or Canada. No packing charge.

Most items can be shipped from our nursery as late as June 1. Late orders given immediate attention.

Write today for Wholesale Trade List of evergreens. Many varieties listed.

### SHERWOOD NURSERY CO.

EVERGREENS 1-1 Propagators & Growers  
141 S. E. 65th Avenue PORTLAND, ORE.

## FRUIT and SHADE TREE SEEDLINGS

Oregon and Washington Grown  
Apple, Pear, Mahaleb, Mazzard,  
Myrobalan

Quince (rooted cuttings)

Chinese Elm Seedlings

Complete Line General Nursery  
Stock.

Chinese Elm, Transplanted Specimens.

Norway Maple, Lining-out Whips.

Send list of your wants for prices.

New catalogue now ready.

Combination carloads to eastern distributing points.

### MILTON NURSERY CO.

A. Miller & Sons, Inc.  
Since 1878  
Milton, Oregon

## OREGON'S BEST SOURCE OF GOOD ROSES

is

### PETERSON & DERING, INC.

Wholesale Rose Growers

Scappoose, Oregon

Write for List

### CHINESE ELM SEED

Genuine, hardy North China Strain.

High germination seed gathered from isolated trees of good type.

WASHINGTON NURSERIES

Toppenish, Wash.

### ORENCO NURSERY CO.

Orengo, Oregon  
WHOLESALE GROWERS

Fruit, Shade, Flowering Ornamental  
Trees, Fruit-tree Seedlings, Roses, Etc.  
Very complete line of quality stock

Catalogue sent on request.

### OREGON SPRING MEETING.

May 2 and 3 have been set as the dates of the spring meeting of the Oregon Association of Nurserymen, to be held at the Oregon State College, Corvallis, in the Memorial Union building.

The meeting will give the nurserymen an opportunity to view experimental plots and hear reports of research on various nursery problems. The program will include papers on rose defoliation, storage of nursery stocks, irrigation, spraying, diseases, insects, landscape problems and lawn grasses. It will include discussions on quarantines, inspection and state-federal nurseries.

The business meeting of the association will be held on the afternoon of May 2, and a banquet is scheduled for the evening. The state organization of garden clubs is holding its meeting in Corvallis at the same time, and it is planned to have at least one joint session between this organization and the nursery group.

It is announced that there will be but one meeting this year, which will be arranged for all the groups in the membership, including nurserymen, landscape gardeners, florists and bulb growers. Officers of the association are: President, Fred Borsch, Maplewood; vice-president, Wayne McGill, Fairview; secretary, J. E. French, Portland; treasurer, A. M. Doerner, Portland, and assistant treasurer, Ray Simpson, Troutdale.

### BACHER SHOWS PICTURES.

Under the sponsorship of the Oregon Landscape Association, J. E. Bacher, of the Swiss Floral Co., who is president of the Pacific Coast Association of Nurserymen, showed the pictures he made in Europe just before the war broke out, at the Benson Tech auditorium, Portland, March 29. Officers of the Oregon Landscape Association are: President, Paul Deblock; vice-president, Karl Henrikson, and secretary-treasurer, Frank Armstrong, all of Portland.

THE annual lilac show of W. B. Clarke & Co., San Jose, Cal., was held at the nursery March 30 to April 3. While the show was primarily for lilacs, other flowering shrubs and trees were displayed.

## PORTLAND WHOLESALE NURSERY CO.

306 S. E. 12th Ave., Portland, Oregon

To the Trade Only

A General Line of NURSERY STOCK

including the following:

FRUIT TREES  
ESPALIER FRUIT TREES  
FRUIT TREE SEEDLINGS  
NUT TREES  
SMALL FRUITS  
SHADE and FLOWERING TREES  
DECIDUOUS SHRUBS  
EVERGREENS  
VINES and CLIMBERS  
PORTLAND-GROWN ROSES  
BULBS and PERENNIALS

Also a complete line of Nursery Supplies

Oregon-Grown Quality Guaranteed

## A. MCGILL & SON

FAIRVIEW, OREGON

Wholesale Only

GOOD WESTERN-GROWN  
NURSERY STOCK

Fruit Tree Seedlings

Flowering Ornamental Trees

Shade Trees

Roses

Grown right and packed right.

Combination carloads to Eastern distributing points will save you on freight.

## Oregon-Grown SELECT NURSERY STOCK

Catalogue on request

### DOTY & DOERNER, INC.

Route 6, Box 92

Portland, Oregon

Per 1000  
Boysenberry Tips, (strong).....\$25.00  
Youngberry Tips, (strong)..... 25.00  
Cuthbert Suckers, (strong)..... 15.00  
Newburgh Suckers, (strong)..... 22.50  
Taylor Suckers, (strong)..... 22.50

DENISON & BLAIR

Troutdale,

Oregon



## Laws and Taxes

### \$3,000 WAGE LIMITATION.

Since its inception the federal old-age pension tax has only applied to the first \$3,000 of wages or salary paid an employee, no matter what he earned above that sum. By last year's amendments that limitation applies after January 1, 1940, to the unemployment compensation tax as well, so far as the federal government is concerned. Nineteen states have swung into line and adopted a similar provision limiting an employer's tax to the first \$3,000 paid to an employee within a calendar year. Ten other states have announced a postponement of payment of employer contributions on an employee's wages after the \$3,000 mark has been reached. Such announcement comes from state executives in anticipation of legislative action before the end of the year. Better check up to see what is the case in your state, to avoid overpayment.

### INSURANCE AND TAXES.

Premiums paid by an employer on the ordinary type of life insurance on the lives of his employees represent additional taxable income to the employees. However, premiums paid by an employer on group life insurance policies for his employees do not constitute additional income and are not required to be included in the federal income tax returns of the employee. Not only is income tax involved, but also estate tax. Where premiums on group insurance are paid by the insured employees, the insurance will be deemed taken out by the insured and his estate will be liable to pay the estate tax on the proceeds of the policy, or at least that portion of the proceeds which represents the proportion of premiums paid by him.

If the employer pays all the premiums on group insurance, the proceeds of such insurance will not be subject to estate tax and the additional compensation represented by the payment of premiums by the employer will be received by the employee free of income tax. If the employer specifically deducts premiums paid by him from the insured's compensation, the premium will be deemed to have been paid by the employee. In closed corporations where the actual owners of the corporation are the employees, corpora-

tion-paid group insurance furnishes a method of eliminating the responsibility for income and estate tax by corporate payment of premiums.

### WAGE SUIT DISMISSED.

On the basis that agricultural labor is exempt from the fair labor standards act, despite the fact that the firm is engaged in interstate commerce, a florists' and nursery firm in Tennessee recently was able to have a suit brought against it by three employees dismissed in chancery court. They were employed in the wholesale nursery business operated by the firm and sued for themselves, as well as others similarly employed, claiming they were entitled to additional remuneration inasmuch as the firm is engaged in interstate commerce and yet does not comply with the minimum wages and maximum hours set forth in the act.

The case was argued before the chancellor on bill and demurrer, whereupon he sustained the demurrer and dismissed the bill, it being shown that the complainants were employed in agriculture and that, therefore, they are not entitled to the benefits nor amenable to the provisions of the act. From this final ruling, the complainants have appealed to the Tennessee Supreme court.

### MAY GET FARM LOANS.

Horticultural and floricultural activities will be eligible for federal farm loans, if a bill introduced by

Senator Charles O. Andrews, of Florida, becomes law.

Under the Andrews bill, any law which provides for or authorizes any loan or advance of credit to farmers would include horticultural and floricultural operations. Under the terms of the measure, "farmer" shall include any person who is the owner or lessee of land used in raising horticultural or floricultural commodities, who is engaged in such activities on such land, either personally or through an agent or tenant, and who derives the principal part of his income from the raising of such commodities.

### NEW PLANT PATENTS.

The following plant patents were issued recently, according to Rummler, Rummler & Davis, Chicago patent lawyers:

No. 371. Delphinium. Max Reuter, Blue Point, N. Y. A new and distinct variety of perennial hybrid delphinium with qualities in combination substantially as shown and described, characterized particularly by its prolific production of large, richly colored flowers of the Belladonna type; its racemes from twelve to sixteen inches long, flowers of which all open in a single day; the lasting quality of its flowers; the absence of seeds; its thin, pliable stems; its immunity to mildew; its resistance to adverse weather conditions and freedom from infestation by bees; its low, bushy growth throughout the season, and its habit of producing four crops of bloom during a season.

No. 372. Carnation. Russell Engle, Kokomo, Ind., assignor to Tom Knipe, Florist, Kokomo. A new and distinct variety of carnation characterized particularly by its vigorous growth, its quick and profuse blooming after being transferred from the field, the rapidity with which its cuttings are rooted, its strong, nonsplitting calyx and its very large, irregular flowers approximating carmine, which appear much more brilliant in artificial light.

## HARDY DAKOTA GROWN TREES

BEAUTIFULLY SHAPED—GOOD ROOTS—LOW PRICES

CHINESE ELM (Ulmus Pumila)

We have a block of ornamental, shade and boulevard trees that MUST be moved. We will sell them at low prices, especially if you can use a CARLOAD OR MORE. These trees are in fine condition and will be dug as soon as ordered.

6 to 8 ft.	1 1/2 to 2 -in. cal.
8 to 10 ft.	2 to 2 1/2 -in. cal.
1 1/2 to 1 3/4 -in. cal.	2 1/2 to 3 -in. cal.

WRITE FOR PRICES ON ANY QUANTITY

### HARDY, NORTHERN-GROWN TREE SEEDLINGS

We have a fine lot of forest tree seedlings grown in our nurseries at Yankton, South Dakota. We can supply almost any quantity in any of the following:

Ash, Green  
Elm, American  
Elm, Chinese

Thornless Honey Locust  
Russian Olive

Sizes run from 6 to 12 inches to 3 to 4 feet.

WRITE FOR PRICES—WE WILL BE GLAD TO SEND SAMPLES

**THE HOUSE OF GURNEY, Inc., Yankton, South Dakota**

**PEACH TREES**

in large quantities

**BOYSENBERRY**

1-yr. No. 1 Tips and Transplants

**BLUEBERRY**1-yr. Rooted Cuttings  
2 and 3-yr. Plants**STRAWBERRY — RASPBERRY  
ASPARAGUS PLANTS****BOUNTIFUL RIDGE NURSERIES**

Princess Anne, Md.

**HARDY FRUITS**Haralson Apple  
Manchurian Apricots  
Red Lake Currant  
Fredonia Grape  
Taylor Red Raspberry  
Mary Washington Asparagus  
Americana Plum Seedlings  
Caragana Pygmaea, L.O.S.**ANDREWS NURSERY**

Faribault, Minn.

**If it's new for  
the Northwest, we have it!**

In quantity, we grow:

New Red Lake Currant  
McDonald and Ruby Rhubarb  
Cornus Elegantissima  
Cotoneaster Acutifolia  
Physocarpus Monogynus  
Minnesota Fruit Breeding  
Farm originations**SUMMIT NURSERIES**

Stillwater, Minnesota

**CERTIFIED RASPBERRY PLANTS**75,000 Indian Summer (Everbearing),  
Taylor, Marcy, Chief, St. Regis, etc.  
No. 1 and heavy Transplants. Quality  
stock. Attractively priced.**BERT BAKER** Hoosick Falls, N. Y.**Wholesale Growers of**Grapevines, Currants, Gooseberries,  
Blackberries and Raspberries  
Let us quote on your requirements**FOSTER NURSERY COMPANY, INC.**

60 Orchard St. Fredonia, N. Y.

**Specializing in Vegetable Roots  
Asparagus • Rhubarb • Horseradish**1, 2 and 3-year-old  
Also BERRY PLANTS Send for List**FIELD'S NURSERY** Phone  
Wenonah 96 R 3  
Post Office, SEWELL, Box 40, N. J.**RED LEAF BARBERRY**

Seedlings, 3 to 6 ins., \$6.00 Per 1000 Per 5000

Write for our Surplus List of Liners.

**FAIRVIEW EVERGREEN NURSERIES**  
FAIRVIEW, PA.**GOVERNMENT TREES' COST.**

"On the average, it cost about a cent and a quarter last year to grow a seedling tree in a forest service nursery and transplant it to land in need of reforestation," stated a recent press release from the United States Department of Agriculture.

"Seedlings of three species of pine account for almost two-thirds of all the 125,000,000 trees set out on the 131,707 acres of national forest lands that were planted last year," continued the dispatch. "These species were longleaf pine with 28,598,000 trees; jack pine, 22,975,000, and red or Norway pine, 22,814,000. Then there was a sharp drop in numbers to shortleaf pine, less than 8,500,000, with slash pine, northern white pine, ponderosa pine and white spruce ranging between seven and eight million each.

"Included in the plantings were smaller quantities of Douglas fir, western white pine, Jeffrey pine, loblolly pine, cedar, Engelmann, Norway, Sitka and blue spruces, and hardwoods such as black locust, various oaks, black cherry, yellow poplar and cucumber magnolia."

**FOREST PLANTING SPEEDED.**

Planted acreage on national forest lands will pass the million-acre mark this spring. January 1, 1940, it stood at 946,574 acres, including 131,707 acres planted in 1939. In the past five years the United States Forest Service has been able to make use of considerable relief labor, and the forest plantings have averaged more than 160,000 acres per year. This yearly average is greater than the total of the plantings before 1935.

Forest Service records show that it costs about two-fifths of a cent to produce a seedling tree suitable for planting, and a little more than four-fifths of a cent to plant it. On the average it takes about 950 trees to plant an acre, costing about \$12 an acre.

With a million acres planted, the Forest Service estimates there are still about three and one-half million acres in need of planting in the national forests, primarily because fires have destroyed the forest cover, leaving no seed trees for natural reproduction.

THE Capitol Forestry Co., Schenectady, N. Y., was incorporated March 25. The new landscaping service will have its office on Lisha Kill road.

**ROTOTOX**

Reg. U. S. Pat. Off.

**For Peach Borer Control**

ROTOTOX is made with Ethylene Dichloride which was recommended for the borer in an article appearing in the March 15, 1940, issue of the American Nurseryman, page 34.

ROTOTOX contains Rotenone and Penetrol and is widely used for the control of hard-to-kill insects such as Gladiolus thrips on the bulbs and plants; European corn borer in Dahlias; Cyclamen mite or "Delphinium Blacks;" red spider, leaf hopper and many other pests. It is splendid for spraying ornamentals and fruit and vegetables. ROTOTOX is safe and economical too.

20-page Green Booklet free with order or on request. Ask for Peach borer control directions.

POSTPAID PRICES: 8 oz. (makes 12 to 24 gals.), \$1.00; 1 pt., \$1.75; 1 qt., \$3.00; ½ gal., \$5.00; 1 gal., \$10.00; 5 gals., \$45.00, prepaid; terms cash with order.

**THE ROTOTOX COMPANY**

8124 Yale Street East Williston, N. Y.

**Apple and Peach Trees  
In Carload Lots**

A long variety list to select from. We also can offer other Fruit Trees in carload lots, as well as Tennessee Natural Peach Seeds.

If you are interested in either Fruit Trees or Peach Seeds, send us your want lists and we will quote attractive prices.

**SOUTHERN NURSERY CO.**

Winchester, Tenn.

We are offering CEDAR POLES such as are being used to stake street trees, at \$11.00 per 100, f.o.b. New York.

MICHIGAN PEAT by the carload.

Send your requisites of nursery stock.

**ARTHUR DUMMETT**61 West Grand Street,  
Mount Vernon, N. Y.**Headquarters for  
MASTODON**

and Gem Everbearing Strawberries

\$4.50 per 1000 and \$3.98 per 1000 respectively.

1000 Eldorado Blackberries, \$7.50.

First-class Quality Stock Guaranteed.

**WESTHAUSER NURSERIES** (Box 15) Sawyer, Mich.

Strawberries, Raspberries, Blackberries,  
Dewberries, Boysenberries, Youngberries,  
Grapevines, Asparagus Roots,  
Shrubs and Perennials.

Write for wholesale list.

**E. W. HUEBNER NURSERY**

Stevensville, Mich.

**PEACH PITS**

Our Pits Compare Favorably  
With the Best

**HOGANSVILLE NURSERIES**  
HOGANSVILLE, GEORGIA

We offer general line of

**FRUIT TREES**

Heavy on Apple and Peach. Can furnish  
by carload. Send us your want list.  
Write for prices.

**COMMERCIAL NURSERY CO.**

Decherd, Tenn.

## ESTIMATING CHARTS

By JOHN SURTEES

The new Ready Reckoner for Tree Balls, Tree Pits, Lawns, Hedges, Excavation, Topsoil, Humus, Manure, Areas, Weights, Carloads, Truckloads and much other information.

**They Save Time. They Save Errors.**

Over 200 sizes Tree Balls, 800 sizes Tree Pits, Truckloads, Carloads, Quantities, Weights, Areas. All figured out for immediate reference.

**The Useful Ready Reckoner and Guide for Estimating**

Second edition now in print.

**Price \$2.00**

For sale by

**AMERICAN NURSERYMAN**

508 S. Dearborn St.

Chicago, Ill.

## TWINE ROPE BURLAP

Special Cordage  
for Nursery Work

**J. E. FRICKE CO.**  
40 North Front Street  
PHILADELPHIA, PA.

## MAHONIA AQUIFOLIUM (Oregon Grape)

**SEEDLINGS**

4 to 12 inches, row run

**\$20.00 per 1000.**

(We can now ship Mahonia to any state in the union.)

**MOUNT VERNON NURSERY**  
Mount Vernon, Wash.

## CLARK GARDNER NURSERIES

Osage, Iowa

Originators of patented **SEMI-POT-  
TED PLANT AND BULB PACKAGE**  
for over-counter trade. Has **WATER-  
ING TUBE** and other unique features.

## ACME GRAFTING COMPOUND

A new grafting compound endorsed by Michigan State College. Moderately priced and applied cold with a brush. Used also as a protective coating for injury. We can also supply Hand and Brush grafting wax and wax heaters. Send for price list. Special prices in quantity lots to nurserymen.

**M. H. Hunt & Son,** 510 N. Cedar St.  
Lansing, Mich.

## CATALOGUES RECEIVED.

[In writing for a copy of any of the catalogues reviewed below, please mention that you saw it described in the American Nurseryman.]

Pontiac Nursery Co., Romeo, Mich.—Wholesale trade list of general line of stock, 32 pages, 5 3/4 x 8 3/4 inches.

August Vorndran Nursery, Webster, N. Y.—Price list No. 10, with trade discount, of evergreens, trees, shrubs and vines, 32 pages and cover, 4 x 8 inches.

Rototox Co., East Williston, N. Y.—Green booklet of 20 pages, 4 x 9 inches, containing instructions for Rototox spray, useful for a considerable variety of insects on diverse types of plants.

Upton Gardens, Colorado Springs, Colo.—Retail catalogue of "Rocky mountain rarities," chiefly perennials, including rock garden subjects, briefly described, with numerous illustrations, well printed on 24 pages of enamel paper in stiff cover, 5 x 8 inches.

Chase Nursery Co., Chase, Ala.—Spring bulletin No. 2, dated March 29, listing items still available for spring shipment.

Jewell Nurseries, Inc., Lake City, Minn.—Bulletin No. 8, dated April 1, listing items in trees, shrubs and perennials in available quantities.

Maywood Nursery Co., Maywood, Ill.—Wholesale price list of general line of stock, 24 pages, 4 1/4 x 8 1/2 inches.

Sunny Knoll Orchard & Nursery Co., Mobile, Ala.—Wholesale price list of considerable list of camellias, some azaleas and other shrubs, 12 pages, 4 x 9 inches.

C. R. Burr & Co., Manchester, Conn.—Wholesale trade list, bulletin No. 2, dated April 1, covering general line of stock, 32 pages, 6 x 8 1/2 inches.

Shenandoah Nurseries, Shenandoah, Ia.—Wholesale trade list, bulletin No. 3, with grade counts, 72 pages, 6 x 9 inches.

## SUPPLY LARGER TREES.

Trees available at the Idaho federal-state coöperative forestry nursery for farm wood lot and windbreak planting this spring will be considerably larger than those distributed in previous years, states Royale K. Pier-son, extension forester.

This is particularly true of such species as Russian olive, green ash, honey locust, Siberian pea tree and Siberian elm.

Most varieties grown at the nursery originate from seeds collected in Idaho, usually from localities having short growing seasons. While the stock so produced is quite hardy, it does not make the growth during one year in the nursery that will bring it to a desirable size.

Beginning this spring, all trees, except evergreens, will be at least 2 years old. The evergreens will vary from 2 to 4 years, depending on the variety.

The use of larger planting stock results in better survival and more satisfactory growth.

## AMERICA'S TREES ARE WORTH SAVING

The Bartlett Company co-operates with the nation's nurserymen in maintaining in health and beauty the settings which they create. This service is available from Maine to the Carolinas through 32 conveniently located branch offices.

**The F. A. BARTLETT TREE EXPERT CO.**  
Laboratories & Experimental Grounds  
STAMFORD, CONN.

**BARTLETT**  
TREE EXPERTS

## NURSERY SEEDS For Spring Planting

	1/4 lb. Lb.
<i>Cedrus Deodara</i> .....	\$0.75 \$2.15
<i>Chamaecyparis Lawsoniana</i> ..	.45 1.50
<i>Pinus sylvestris</i> .....	.90 3.00
<i>Pseudotsuga Douglasii</i> , blue, Inter-Mountain Strain, the hardiest (cedria).....	1.35 4.50
<i>Taxus cuspidata capitata</i> ....	.40 1.50
<i>Thuja occidentalis</i> .....	.95 3.00
<i>Thuja orientalis</i> .....	.40 1.50
<i>Ilex Aquifolium</i> , clean.....	.35 1.20
cornuta, clean .....	1.00 3.50
pedunculosa, clean .....	.60 2.50
<i>Tilia vulgaris</i> , stratified, do- mestic seed .....	.40 1.50

**F. W. SCHUMACHER**  
Horticulturist  
Jamaica Plain, Boston, Mass.

## NU CROP CHINESE ELM SEED

Now booking

1 lb. ....	\$1.25 per lb.
10 lbs. ....	1.00 per lb.
25 lbs. ....	.90 per lb.

Ask for price in large lots.  
Order now.

**THE BARTELDES SEED CO.**  
Denver, Colorado



# GRASS SEEDS

*of Fine Quality*

We Specialize in Domestic and Imported Turf Grasses

Ask for samples and prices

**O. M. SCOTT & SONS CO.**  
MARYSVILLE · OHIO

## "Pure Kentucky" BLUE GRASS LAWN SEED

We believe that Nurserymen and Florists as a rule give more service and value for the money than most any other business. Especially then our seed appeals to them because we give sincere high quality that takes effort to secure. At harvest time we go into the fields and select only the clean, ripe, heavy seed and cure and clean it to perfection. Every seed Kentucky grown, fresh 1939 crop, with catalogue and instructions: 10 lbs., \$2.25; 25 lbs., \$4.00; 50 lbs., \$11.50; 100 lbs., \$22.00, less 3% on last two sizes.

**WALNUT LAWN FARM**  
Lexington, Route 2 N. Ky.

## PERMANENT FOR LAWNS

Woodruff continually studies the growing characteristics of grass varieties and grass mixtures. The great Proving Grounds, in three different sections of the country, give Woodruff a remarkable store of practical information. All this knowledge is placed at your disposal. Simply write for details.

**F. H. WOODRUFF & SONS, INC.**  
Milford, Conn.

Send for mailings of Turf Topics

**WOODRUFF  
LAWN SEED**

**North Dakota and Montana Seeds**  
FORESTRY SEEDS  
WILD FLOWER SEEDS  
NATIVE PLANTS  
Write for wholesale trade list  
**E. C. MORAN**  
Medora, N. D.

**ULMUS PUMILA**  
Chinese Elm Seed  
Ready April 15. Good germination  
Also Seedlings.  
**PLAINVIEW NURSERY**  
Established 1907 Plainview, Tex.

## LAWN MAKING.

The need for good surface and sub-soil drainage and the ability of the soil to hold moisture and to hold chemical contributions were emphasized in his talk on lawn making by Prof. C. E. Millar, of Michigan State College, before the state nurserymen's meeting. Soil which is of a loam type, or modified by adding one part peat and one part sand to heavy soils, or one part peat and one part clay to sandy soils, is most satisfactory. All soils should be high in humus.

Late summer (August 15 to September 15) is the best period for seedling.

The cause of most turf failures is starvation. For sunny lawns the fertilizer recommended is 10-6-4, with ten pounds per thousand square feet applied as soon as the ground thaws in the spring and repeated eight weeks later and again September 1.

Lack of light under trees is not the cause of poor turf; the competition with tree roots requires feeding both trees and grass. Therefore, for shady lawns fertilize with ten pounds 10-6-4 per thousand square feet in spring and repeat with four pounds per thousand square feet every two or three weeks until September 1. Water fertilizer into the soil thoroughly.

Mow regularly at the height of one and one-half to two inches. Never let the grass get more than one inch higher than mowing height.

Water no more rapidly than the soil will absorb water. Leave the sprinkler in one place until the soil is moistened to a depth of six inches or more. Usually watering once a week in this manner is sufficient if there are no trees to take part of the water.

On weed control, Dr. Millar recommended a heavy growth of turf to crowd out weeds and the sparing use of sodium chlorate. For large-leaved weeds, use a pinch of sulphate of ammonia on crown of plants.

**PURCHASE** of the Bear Gardens Nursery Co., Milroy, Pa., was recently completed by A. Roland Thompson, who will move the stock to his farm near Belleville.

**WARM** winter and spring weather have kept nurserymen busy in the northwest, reports H. T. Hopkins, Bothell, Wash. Flowering trees came into bloom at the beginning of this month.

## HARDY LILIES

*Ready for Prompt Delivery*

Six of a kind at dozen rate; 25 or more at 100 rate. Doz. 100

**AURATUM** (Gold-banded Lily of Japan).  
8 to 9 ins. cir.....\$1.70 \$12.00

**BATEMANIAE**, Rich glowing apricot.  
First size.....2.50 18.00

**CONCOLOR** (Star Lily).  
Bright scarlet.  
First size, 4 ins. and up...1.40 10.00

**CROCEUM** (Irish Orange Lily).  
Top size, 7 ins. and up...2.20 15.00

First size, 6 to 7 ins.....1.70 12.00  
Second size, 4 to 6 ins.....1.50 10.00

**ELEGANS**, George Joerg. Brilliant orange. First size.....1.50 10.00

**ATROSANGUINEUM**, Rich dark crimson. First size  
**MAHOGANY**, Mahogany-red.  
First size.....1.50 10.00

**HENRYI** (The Golden Speciosum).  
9 ins. circumference and up 3.00 20.00

8 to 9 ins. circumference...2.20 15.00  
7 to 8 ins. circumference...1.50 10.00

6 to 7 ins. circumference...1.00 7.00  
5 to 6 ins. circumference... .75 5.00

**PHILIPPINENSE FORMOSANUM** (The Wonder Lily).  
5 ins. circumference and up 1.50 12.00

4 to 5 ins. circumference...1.30 9.00  
3 to 4 ins. circumference...1.00 7.00

2 to 3 ins. circumference... .75 5.00

**PRAECOX**, White Queen. Large white trumpet.  
8 to 10 ins. circumference...2.70 18.00

6 to 8 ins. circumference...2.00 14.00  
4 to 6 ins. circumference...1.50 10.00

2 to 4 ins. circumference... .90 6.00

**REGALE** (Regal Lily).  
10 ins. circumference and up 3.00 20.00

9 to 10 ins. circumference...2.20 15.00  
8 to 9 ins. circumference...1.50 10.00

7 to 8 ins. circumference...1.30 9.00  
6 to 7 ins. circumference... .90 6.00

**SPECIOSUM ALBUM**, White. 8 to 9 ins. circumference...2.50 18.00

**SPECIOSUM RUBRUM** (Magnificum), Pink and white, spotted red.  
8 to 9 ins. circumference...1.70 12.00

**TENUIFOLIUM** (Coral Lily).  
2-year select, 4 ins. and up 1.00 7.00

2-year, No. 1, 3 to 4 ins. circumference... .75 5.00

2-year, No. 2, 2 to 3 ins. circumference... .50 3.00

1-year, No. 1, 1½ to 2 ins. circumference... .40 2.00

**TENUIFOLIUM, Golden Gleam** (Golden Coral Lily).  
2-year, No. 1, 3 ins. circumference and up...1.20 8.00

2-year, No. 2, 2 to 3 ins. circumference... .75 5.00

**TENUIFOLIUM, Red Star**, Star shaped.  
3 to 4 ins. circumference...1.20 8.00

2 to 3 ins. circumference... .75 5.00

**TIGRINUM** (Single Tiger Lily).  
8 ins. circumference and up 1.30 9.00

7 to 8 ins. circumference... .90 6.00  
6 to 7 ins. circumference... .75 5.00

**UMBELLATUM ERECTUM**, Scarlet.  
8 ins. circumference and up 1.70 12.00

6 to 8 ins. circumference...1.50 10.00  
4 to 6 ins. circumference...1.00 7.00

**UMBELLATUM**, Vermilion Brilliant. Brilliant crimson.....1.50 10.00

F.o.b. Benton Harbor, Michigan. No charge for packing. 3% discount for cash with order. Order today.

**A. M. GROOTENDORST**  
Benton Harbor, Michigan

## LAWN GRASS SEED

Select Recleaned

100 lbs.  
Velvet Lawn Mixture.....\$20.00

Kentucky Blue Grass, extra fine.....22.00

Redtop, fancy silver seed.....12.50

American Rye Grass.....7.00

**A. H. Hummert Seed Co.**  
2746-48 Chouteau Ave., St. Louis, Mo.

# New Books and Bulletins

## "DISEASES OF BULBS."

A compilation of data that should be of inestimable value to growers of all kinds of bulbous crops is a recent publication of the British Ministry of Agriculture and Fisheries, issued as bulletin No. 117 under the title "Diseases of Bulbs." Preparation of the work, it is stated, was induced by the expanding interest in bulb culture in England. Since 1926, special consideration has been given the problem of bulb diseases in the ministry's plant pathological laboratory, and during the same period the world literature on the subject, comprising nearly a thousand original papers, has been consulted and collated.

The present bulletin, more nearly a book, consisting of 176 pages, is the outcome of the work cited and was prepared by W. C. Moore, of the plant laboratory, to give an up-to-date summary of existing knowledge concerning the diseases of bulbs. An attempt was made to achieve two main objects, viz., to provide the grower with an account in popular language of the symptoms, spread and control of each of the common diseases, and to furnish the plant pathologist and research worker with a guide to the literature on the more uncommon diseases and on the technical aspects of the subject. Specific reference is made in the text to all significant literature.

The term "bulb" is used here in the wide sense as applied indiscriminately to the storage organs of certain ornamental plants whether bulbs, corms or rhizomes. The plants dealt with all belong to the natural orders liliaceæ, amaryllidaceæ and iridaceæ. The diseases are considered separately under the headings of the various bulbous crops, of which the major ones are hyacinths, tulips, lilies, narcissi, gladioli, irises and crocuses; the smaller miscellaneous bulbs are also covered. Literature of the past sixty years is cited, with the control measures drawn from the most recent material offered. Included is a 25-page literature reference. Many fine half-tones showing characteristic disease symptoms make the book especially useful. Copies of the publication can be obtained from the British Library of Information, 50 Rockefeller Plaza, New York. The price is \$1.20.

## BULLETINS RECEIVED.

"Two New Varieties of Almond: The Jordanolo and the Harpareil," by Milo N. Wood, circular 542 of the United States Department of Agriculture, describes in twelve pages these two selections from the hybrids of the Harriott and Nonpareil varieties in the breeding work done by the federal department in cooperation with the California agricultural experiment station.

"Defects Which Reduce Quality and Yield of Oak-Hickory Stands in Southeastern Iowa," by Charles M. Genaux and John G. Kuenzel, research bulletin 269 of the Iowa agricultural experiment station, Ames, reports a project cooperatively undertaken with the central states forest experiment station and the United States Department of Agriculture. It points out the better methods desirable if a sound program of land use for Iowa's remaining forests is to be followed. The booklet consists of forty pages and cover with illustrations and tables.

Similar report of tree defects and stand conditions on the Hacker creek experimental area in the Morgan-Monroe state forest, in southern Indiana, appears in five mimeographed pages as station note 38, by Richard D. Lane and John G. Kuenzel, from

the central states forest experiment station, Columbus, O.

"Effects of Fires on Forests," 130 mimeographed pages, is a bibliography compiled and annotated in the United States Forest Service library, Washington, D. C. Except for the historical section, which includes references from the early 1800's, the period covered is from about 1912 to September, 1938.

"Coöperative Marketing of Forest Products," consisting of twenty-two mimeographed pages, is a bibliography compiled and annotated in the United States Forest Service library, Washington, D. C.

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#### EARLY OR LATE MULCHING.

One of the most important talks at the recent short course in horticulture at the University of Minnesota, St. Paul, was that of Dr. W. G. Brierley on the proper time to mulch berry plants and perennials.

Quoting a statement made several years ago by Dr. W. T. Macoun, of the Dominion horticultural service, that there can be "no hardiness without maturity," Dr. Brierley referred to the often-given advice to wait until a good hard freeze before covering plants. Tests were made to determine soundness of that advice.

A number of plants of strawberries and perennials were dug and potted in late September, put in an open frame and covered with an ordinary mulch at various times, the object being to determine as far as possible when injury took place, as well as at what temperature plants were most easily injured and their ultimate behavior.

When covered too early, the plants did not mature, but remained soft and green; hence the statement, plants do not harden in the dark. Late mulching is followed quite often because it is easy to drive over the ground when the soil is frozen. Unfortunately, severe injury may have occurred by that time. So it is obvious that both early and late mulching were proved dangerous. To determine when to cover plants, growers were advised to watch the temperature of the soil as well as that of the air. Should the soil freeze slowly, the plants have an opportunity to harden and mature before mulching is applied. This should be done before the temperature drops to 20 degrees Fahrenheit.

Other interesting talks were given by W. R. Leslie, of the Dominion experimental station at Morden, Manitoba, on newer hardy shrubs and perennials; by Dr. L. E. Longley, of the horticultural staff, on garden chrysanthemums and also on the proposed rose test garden; by R. S. Wilcox, St. Paul, chairman of the rose test garden committee, on hardy varieties; by Dr. Harvey E. Stark, of Carlton College, on hunting plants in the Andes; by N. A. Borgen, Excelsior, on dahlias, and Prof. L. Sando, on herbs.



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### SELECTED EVERGREENS.

[Continued from page 8.]

at maturity and may be from fifteen to twenty feet across. This wide-spreading, flat-topped habit of growth and its shorter, wider needles distinguish it from *Taxus cuspidata densa*. Both types are satisfactory for foundation planting, beds, dwarf hedges and rock garden planting.

The other variety of Japanese yew in this size group is *Taxus cuspidata minima*. It is a true dwarf, said to attain a height of less than ten inches in fifteen years. It was discovered by B. H. Slavin in the Durand-Eastman park, Rochester, N. Y. Because it is not generally in the trade, it has been placed on the secondary list. It should make a good rock garden subject.

A few other taxus come in this size group. *Taxus canadensis stricta* is said to be a fine plant of rather dwarf, stiffish form. It has not been seen in many places, but probably should be limited to planting in shady situations, as is typical of the species. It is said to make a good upright hedge for shady situations.

*Taxus Hunnewelliana*, a hybrid between *Taxus cuspidata* and *Taxus canadensis*, *Taxus canadensis densa* and *Taxus baccata nana* have been relegated to the discard list.

Of the dwarf forms of the American arborvitae in this size group, only one is placed on the selected list. *Thuja occidentalis Woodwardii*, the Woodward arborvitae, seems to be the best of the group. It is a dense, globose form with deep green foliage, retaining its color well during the winter.

*Thuja occidentalis Hoveyi*, *pumila* and *umbraculifera* are all placed on the secondary list, as observation and trial have shown that they are usually

not so satisfactory over a period of time as the Woodward arborvitae. The Hovey arborvitae is a slow-growing, broad pyramid with rather light green foliage and is not attractive with age. The name *Thuja occidentalis Little Gem* is synonymous with *Thuja occidentalis pumila* and the correct scientific and common name of this plant should be *Thuja occidentalis pumila*, Little Gem arborvitae. The Little Gem arborvitae is doing well in the east, but my observations would indicate that it does not do so well in regions with hot, dry summers. At its best it has dark green foliage and is a low cushion form, much wider than high. *Thuja occidentalis umbraculifera* has not

been common in the trade. The plant is a compact, depressed globose form with fine dark green foliage. From limited observation this variety compares favorably with the best of the dwarf arborvitae and is probably satisfactory for low hedges and foundation planting under right conditions, the same as the Woodward arborvitae. *Thuja orientalis nana compacta* is a dwarf conical form with bright green foliage attaining a height of about three feet. It is not so good as some of the *Thuja occidentalis* varieties, but finds a place on the secondary list.

*Tsuga canadensis nana*, Bennett spreading hemlock. Considerable interest has recently developed in the

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varieties of Canadian hemlock, especially the dwarf forms. Possibly I am going to extremes in placing a variety that is hardly known in cultivation on the selected list. However, the Bennett spreading hemlock seems worthy of such placement. It is characterized as being of spreading habit, graceful foliage and good texture. The largest plant known is about three and one-half feet high and seven feet across. Other good dwarf varieties of the Canadian hemlock are *Tsuga canadensis globosa*, the Curtis Perfect Dwarf hemlock; *Tsuga canadensis densifolia*, the Von Helms hemlock, and *Tsuga canadensis sparsifolia*, the Curtis Sparseleaf hemlock. These dwarf hemlocks should find use for foundation planting and for beds and borders, especially in the shade.

A few comments are necessary regarding some of the plants on the secondary list not already mentioned. The situation relative to the nomenclature of the dwarf forms of *Chamaecyparis obtusa* is rather confusing. The correct descriptions of the varieties do not coincide entirely with the plants carried under the different varietal names in the trade. *Chamaecyparis obtusa compacta* is described as being similar to the type except that it is of dwarf, compact, conical habit with short branches and crowded branchlets. At maturity it is probably larger than the maximum size of this group. *Chamaecyparis obtusa minima* is probably not in the trade. This plant is mostly less than a foot high but somewhat broader. *Chamaecyparis obtusa nana* is a plant of slow growth and of spreading habit, becoming rather flat-topped, with straight horizontal branches. The true form is rarely found. *Chamaecyparis obtusa pygmaea* is described as a slow-growing, flat-topped, rounded bush with horizontal branches. The foliage is glossy and brownish-green in color. It is probable that many of the plants carried in the trade as *Chamaecyparis obtusa nana compacta*, a name that has no standing, are of the type *Chamaecyparis obtusa pygmaea*. *Chamaecyparis obtusa Tsatsumi* is a low, spreading form with twisted thread-like foliage, dark green in color; it is said to be the hardest form of the species. The dwarf types of *Chamaecyparis obtusa* are not satisfactory enough over a wide variation of climatic and soil conditions to warrant



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a place on the selected list. The plant carried as *Chamaecyparis obtusa* compacta often becomes leggy and bare at the base, and all the dwarf varieties are more or less subject to sunscald and winter injury. They do best in a relatively cool and moist situation; consequently, they are better in the east than the middle west.

There are two types of *Juniperus chinensis globosa* in the trade. The most common form is a dwarf sub-globose form with short branchlets and bright green scalelike leaves. Only a few juvenile or awl-shaped leaves occur. The plant is similar to *Juniperus virginiana globosa*, but usually not so compact and with lighter green leaves. I do not consider it so good as the globe redcedar. The Shosmith globe Chinese juniper is a new introduction. It is a dense, compact, rounded form with almost entirely juvenile foliage. It has not had extensive trial, but it looks promising.

Considerable space was devoted in the last article to a discussion of the plant listed as *Juniperus chinensis japonica*. At that time it was mentioned that Hornibrook has suggested the more appropriate name of *Juniperus chinensis decumbens*. I have learned since then that Hornibrook now considers this plant synonymous with the plant earlier described as *Juniperus chinensis plumosa* and that this name should have priority. This dwarf plant, while quite satisfactory, is of slow growth, is susceptible to red spider and certainly does not deserve a place above the secondary list.

*Juniperus chinensis Pfitzeriana* compacta, the slow-growing and compact form of the common Pfitzer juniper, is a relatively recent introduction. From limited observation, it seems to possess all the good qualities of the Pfitzer juniper, but is of slow growth. It should find at least limited use in landscape plantings.

The Savin juniper, *Juniperus Sabina*, is a common plant in the trade, with its spreading, somewhat vase-shaped habit of growth, and attains a height of four to six feet at maturity. Even though it has been commonly planted, it has many faults and deserves a place no higher than the secondary list. It could easily be discarded from use in many regions. After a few years it becomes leggy and open at the base, and it is susceptible to red spider and juniper blight. When the *Tamarix juniper*, *Juniperus Sa-*

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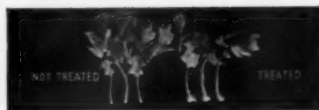
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bina tamariscifolia, was first introduced it appeared to be a fine addition to our rather limited list of low, spreading junipers. This would have been true if it soon had not been discovered that it was probably the most susceptible of all the junipers to juniper blight. If it were not for this fault, it surely would find a place on the selected list. At present it should be used only in sections where the blight is not troublesome. Juniper blight causes considerable damage to small plants in nurseries and landscape plantings. Infection takes place at the tips of the branches during wet or cloudy periods. The fungus spreads downward, beneath the bark, and eventually the twig, branch or even the entire plant is killed. The most important control measure consists of discarding the susceptible varieties and choosing resistant types. Some degree of control can be obtained by regular removal of the blighted tips and a periodic spraying throughout the growing season with one of the metallic copper sprays plus a spreader.

A number of years ago some of the dwarf spruces were quite common. For a time afterward they disappeared from the trade, and only recently have

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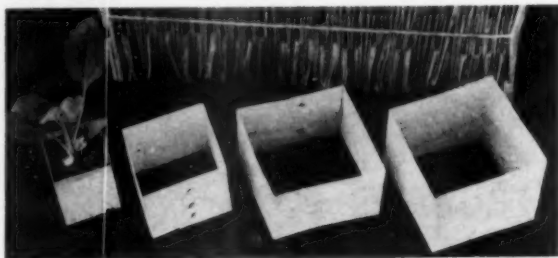




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they acquired some of their earlier popularity. It is quite probable that none of the dwarf spruces will find more than limited use in the landscape planting. I have attempted to select a few of the varieties of the various habits of growth and foliage types for the secondary list. It is quite possible that the number of varieties on the secondary list could be reduced and in some sections some rearrangement of the varieties made with equally satisfactory results.

In closing, it might be mentioned that, since the first article of this series was printed, a contact has been made whereby it will be possible to list the plants, for the most part, according to the nomenclature that will appear in the new editions of "Standardized Plant Names" and Rehder's "Manual of Cultivated Trees and Shrubs." Both publications will probably be available by fall. Both of these publications will follow the International Code of Nomenclature. From information received, the only changes in nomenclature of the plants discussed in the first article necessary are that *Juniperus communis depressa aureo-spica* becomes *Juniperus communis aureo-spica* and *Juniperus squamata albo-variegata* will probably become *Juniperus chinensis expansa variegata*. These plants were both on the discard list.

The two most striking changes from common usage in nomenclature in this



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article are that *Pinus montana* becomes *Pinus mugo* and *Picea excelsa* becomes *Picea Abies*.

#### ERADICATING BINDWEED.

A method of eradicating bindweed, a relative of the morning-glory, which saves half of the time formerly used, has been developed through chemical analysis of the shifts of food material in the plants as they put forth new growth. The deep-branching roots of the bindweed store the food materials manufactured by the leaves. The practical method of elimination is to starve the roots.

When the growing part is cut away by cultivation several inches below ground level, a new shoot replaces the

old one. These new shoots must draw upon the food stored in the roots in starting growth. It was generally believed that as soon as the shoot showed green it would begin to manufacture food, but laboratory experiments have shown that this is not the case. According to these experiments, the new shoots draw the stored food until they are about four inches long.

Formerly the weeds were cultivated every week or ten days to effect eradication, but as a result of these experiments cultivations can be made from twelve to twenty-one days apart, depending upon the rate of growth. Using this method about one-half the time formerly used is required in destroying the weed.

## SOUTHWESTERN NEWS.

Parker Bros. Nursery, Houston, Tex., was low bidder on nursery stock purchased by the state highway department for roadside beautification at Amarillo, Tex.

Miss Renna R. Hunter is supervisor of the state beautification project, a newly established department of the Kansas industrial development commission. The chief purpose of this project is to develop and encourage a program of beautification of Kansas highways, approaches to towns and cities, etc., in collaboration with all groups interested in making Kansas more attractive. The commission was instrumental in placing particular emphasis on the observance of Arbor day, and its recently announced plan for planting a double row of red-buds along the highway between Emporia and Ottawa has aroused much favorable comment in the press.

Bids for roadside improvement in Sedgwick and Cowley counties will be opened at Medicine Lodge, Kan., April 24. For Sedgwick are required 220 shade trees, sixty-two evergreens and 137 shrubs, and for Cowley, 215 shade trees, 238 evergreens, 991 shrubs and 1,105 vines.

L. E. Wilson, of the Holsinger Nurseries, Kansas City, Kan., was recently appointed to the state entomological commission by Governor Ratner. Mr. Wilson is a brother-in-law of George Holsinger, who this year ended a 24-year term as secretary of the Western Association of Nurserymen.

The Kansas Federation of Women's Clubs sponsored a state-wide program of tree planting this year, high-lighting their efforts with a special ceremony at La Crosse when they planted a tree honoring their immediate past-president, Miss Abbie A. Bellport. The tree, which was furnished by C. D. Wagoner, president of the Kansas Nurserymen's Association, was planted near the new library building which Miss Bellport helped sponsor.

The park board of Kansas City, Mo., has authorized the purchase of 6,000 shrubs and trees for the east and west slopes of the Liberty Memorial grounds and for further planting between the drives and walls of the memorial. The material, which will cost \$1,400, will be planted by W.P.A. workers and will follow the Olmsted landscaping plan.

## CLASSIFIED ADVERTISING

Peonies: Tree and Herbaceous, best varieties. Oberlin Peony Gardens, Sinking Spring, Pa.

Hemlock, Red Pine, Austrian Pine, Honey Locust, Moline and American Elm. Elmgrove Nursery, Leetsville, Mich.

Evergreen seedlings, 2-year: White and Red Pine, \$6.50 and \$7.50 per 1000. Terms, cash. Send for spring list of seedlings and transplants. Jackson Nurseries, 293 Westbrook St., Portland, Me.

Cannas, northern-grown; clean, plump, state inspected. Kept stored in sand. 2 to 3-eye divisions: Yellow King Humbert, Copper Giant, Wyoming, \$2.00 per 100, \$15.00 per 1000. F.o.b. Plenoratic Farm, Chesterton, Ind.

## ILEX VERTICILLATA.

Dried berries that have been frozen all winter, \$1.25 per lb., postpaid. Who can use any Gold-thread plants?

N. S. HAYDEN, R. 2, GORHAM, ME.

## MAGNOLIAS.

Soulangiana, Soulangiana Nigra. 2 to 3 ft. .... \$1.25 each 4 to 5 ft. .... \$2.50 each 3 to 4 ft. .... 1.75 each 5 to 6 ft. .... 3.50 each HATHAWAY'S NURSERY, MADISON, O.

IT'S NEW—VITAMIN B<sub>1</sub>.

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Several carloads of large park and landscape evergreens and trees, complete general stock. Also Dictaphone, Multigraph, filing cabinets. Send for list. Hardy Ferns, Irises, Hemerocallis, Gypsophila, Aquilegia, etc., assorted as desired, \$5.00 per 100. STRAND NRSY. CO., TAYLORS FALLS, MINN.

## OLD ENGLISH BOXWOOD.

Heavy rooted liners, 5 to 6 ins., with 1 to 3 stems, \$5.00 per 100, \$40.00 per 1000.

ROBERT H. BENDER, BOXLY NURSERY, St. Martins and Gravers Lane, Chestnut Hill, Philadelphia, Pa.

Nursery Stock Per 100 Hackberry, 4-year, transpl., 2 to 3 ft. .... \$7.50 Hackberry, 4-year, transpl., 3 to 4 ft. .... 10.00 Hackberry, 4-year, transpl., 4 to 5 ft. .... 12.50 Norway Maple, 4-year, transpl., 18 to 24 ins. 5.00 Norway Maple, 4-year, transpl., 2 to 3 ft. ... 7.50 Arbor-vitae Woodward Globe, 3-year, 10 to 12 ins. .... 15.00 Henry Nurseries & Greenhouses, Henry, Ill.

Juniperus Pfitzeriana, 6 to 8 ins., 2 1/4-in. pots, \$7.00 per 100, \$60.00 per 1000. Ship out of pots or bare root.

Thuja Orientalis Bakeri, 4 to 5 ins., rooted cuttings, \$5.00 per 100, \$40.00 per 1000.

Thuja Orientalis Bakeri Hybrids, 4 to 5 ins., rooted cuttings, \$5.00 per 100, \$40.00 per 1000.

Taxus Baccata Elegansissima, 12 to 14 ins., 3-in. pots, \$15.00 per 100. Ship bare root.

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BIOTA Aurea Nana Globosa.		
2 1/4-in. pots	10.00	80.00
Rooted cuttings	6.00	50.00
BIOTA Bakeri.		
Rooted cuttings	6.00	50.00
BIOTA Bonita.		
2 1/4-in. pots	10.00	80.00
Rooted cuttings	6.00	50.00
BIOTA Excela.		
2 1/4-in. pots	12.00	100.00
Rooted cuttings	8.00	60.00
BIOTA Texana Glauca.		
6 to 8 ins., trans.	10.00	80.00
CYPRESS, Italian Worthiana.		
2 1/4-in. pots	12.00	100.00
Rooted cuttings	6.00	50.00
JUNIPERUS Chinensis Pfitzeriana.		
Rooted cuttings	8.00	60.00
JUNIPERUS Chinensis Pfitzeriana Aurea, Hill's Golden Pfitzer.		
2 1/4-in. pots	15.00	120.00
Rooted cuttings	8.00	60.00
JUNIPERUS Japonica (Procumbens).		
2 1/4-in. pots	15.00	120.00
JUNIPERUS Sabina Tamariscifolia.		
2 1/4-in. pots	10.00	80.00
JUNIPERUS Sabina, Savin's Juniper.		
2 1/4-in. pots	10.00	80.00
JUNIPERUS Chinensis Stricta, Spiny Greek Juniper.		
JUNIPERUS Virginiana Horizontalis.		
2 1/4-in. pots	12.00	100.00

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1000 All Green Blakemore Strawberry	3.85
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10 each of 5 Siberian Iris	5.00
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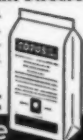
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**OBITUARY.****Miss Kate Olivia Sessions.**

Miss Kate Olivia Sessions, 83 years of age, pioneer California horticulturist, died peacefully in her sleep at the close of Easter Sunday, at Scripps Memorial hospital, La Jolla, where she had been confined for six months since she suffered a fractured hip in a fall in her Pacific Beach garden.

Born in San Francisco, Miss Sessions went to San Diego in the early eighties as a schoolteacher. In 1892 she received permission from the city to cultivate thirty drab acres in a desolate region now the center of San Diego and laid the foundation of the present Balboa park.

She conducted the Kate Sessions Nursery at Pacific Beach and was a widely recognized authority on sub-tropical plants.

In token of appreciation for the garden spots she brought to San Diego, Miss Sessions was publicly honored at the 1935 exposition by a Kate O. Sessions day, at which a portrait by the noted artist, Mary Belle Williams, was unveiled.

**Frank D. Drake.**

Frank D. Drake, for thirty-five years assistant manager of the Drake Nurseries, Winchester, Tenn., died March 21 of complications resulting from influenza.

He was the son of Dr. Edwin L. and Mrs. Nina L. Drake. He leaves three sisters, Miss Elizabeth Drake, Winchester; Mrs. Robert C. Bannerman, Arlington, Va., and Mrs. J. R. Morgan, Hamlet, N. C.

He was rated an expert on varieties of peach and enjoyed the confidence of many large growers, who had respect for his judgment.

**STEINMETZ OPTIMISTIC.**

Just before leaving, April 10, for a month's business trip in California, Avery H. Steinmetz, of the Portland Wholesale Nursery Co., Portland, Ore., wrote optimistically about the spring season and the outlook in the Pacific Northwest, stating, "Most of the nurserymen that I have talked with in this territory feel that the increased demand for nursery stock this spring is likely to continue for the next three or four years, and optimism is quite general so far as we can determine."

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## MICROSCOPIC SULPHUR.

A new process which makes sulphur of microscopic fineness available to orchardists for spray purposes has just been announced by the Dow Chemical Co., Midland, Mich. This recent chemical development produces sulphur with a particle size of approximately one-five thousandth of an inch in diameter.

For years sulphur has rendered a real service to fruit growers in combating fungi, particularly brown rot apple scab. But its effectiveness has been limited by the fact that ground sulphurs are not sufficiently fine to assure quick release of the sulphur vapor.

This new method of producing sulphur of microscopic fineness means that a far more thorough coverage is available than ever before. A fog-like spray can be produced which will completely blanket fruit and foliage. When peaches are sprayed with it, the microscopic sulphur particles penetrate the fuzz and are deposited on the very skin of the fruit—the exact spot where the protection is needed.

The sulphur product of Dow's manufacture, which has been named Mike Sulphur, does not stop with the fineness of the particle. The chemists have incorporated another necessary property. It is claimed this sulphur spray stays on fruit and foliage longer.

Attractive literature of special interest to fruit growers has been prepared by Dow and will be mailed to those requesting it.

SO great was the task of maintaining the gardens, lawns, trees and shrubs of the 1,216½ acres of the New York world's fair that at the peak operating period more than 300 gardeners and assistants were at work on the 7,000 trees, five miles of hedge, 250,000 shrubs and 150 acres of lawn.

THE enhancement of real estate value by planting is indicated in report of a survey made by W. R. Tracy, engineer and secretary of the Union county park system, which showed that properties adjacent to one park in Elizabeth, N. J., increased in value 631.7 per cent from 1922 to 1939 or nearly fourteen times the average increase of 46.4 per cent for the entire city during the same period.

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Size	RED		GREEN	
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3½ in.	4.20	24	7.10	28
4 in.	5.20	34	9.50	30
4½ in.	6.55	23	11.20	26
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